

Risk Factors Comparison 2025-03-31 to 2024-03-05 Form: 10-K

Legend: **New Text** ~~Removed Text~~ Unchanged Text **Moved Text** Section

Investing in our common stock involves a high degree of risk. You should consider and read carefully all of the risks and uncertainties described below, as well as other information included in this Annual Report, including our financial statements and related notes appearing below, **and our other filings with the SEC, before making investment decisions regarding our securities. The occurrence of any of the following risks could harm our business, financial condition, results of operations and / or growth prospects or cause our actual results to differ materially from those contained in forward- looking statements we have made in this report and those we may make from time to time**. The risks described below are not the only ~~ones~~ **risks** facing us. ~~The occurrence of any of the following risks or our company, additional~~ **Additional** risks and uncertainties not ~~presently~~ **currently** known to us or that we currently believe ~~deem~~ **to be immaterial could also may** materially ~~and~~ adversely affect our business, financial condition or **future** results of operations. In such case, the trading price of our securities could decline. This Annual Report also contains forward- looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward- looking statements as a result of specific factors, including the risks and uncertainties described below. Risks related to our financial condition and need for additional capital We have incurred recurring net losses since we were formed and expect to incur losses in the future. We cannot be certain that we will **ever** achieve or sustain profitability. Since our inception, we have incurred recurring net losses **and we expect that our losses will continue for the foreseeable future**. We incurred net losses of \$ **112.0 million and \$** 232.5 million ~~and \$ 132.6 million~~, and used cash in operations of \$ **73.8 million and \$** 24.2 million ~~and \$ 82.8 million~~ for the **years** ~~twelve months~~ ended December 31, **2024 and 2023 and 2022**, respectively. As of December 31, ~~2023~~ **2024**, we had an accumulated deficit of \$ ~~581.693~~ **2** million. We cannot predict if we will be profitable in the near future or at all. ~~We expect that our losses will continue for the foreseeable future as we plan to invest significant additional funds toward the expansion of our commercial organization, research and development efforts and capital expenditures, among other things. Our recent past acquisitions have increased our expenses and we expect that any future acquisitions of businesses, assets, products or technologies will~~ **would** further increase our expenses, which may result in additional losses. We also expect **significant increases in our stock- based compensation expense to increase** in future periods, reflecting **higher stock option valuations as a public company and** the issuance of additional equity awards. In addition, we incur significant legal, accounting and other expenses as a result of being a public ~~company, especially as we no longer qualify as an emerging growth~~ company and are therefore required to comply with additional disclosure and compliance requirements. These factors, among others, will make it hard for us to achieve and sustain profitability. We may also incur significant losses in the future for a number of other reasons, many of which are beyond our control, including the level of market acceptance of our products, the introduction of competitive products and technologies, our future product development efforts, our market penetration and our margins, as well as the other risks described below. Our recurring losses, negative cash flows and significant accumulated deficit have raised substantial doubt regarding our ability to continue as a going concern. **We will need to raise additional capital, which may not be available on acceptable terms, if at all, to fund our existing operations. If we are unable to raise sufficient additional capital in the very near term, we will be required to further curtail our operations, liquidate or otherwise dispose of assets, wind- down or cease operations entirely. In these circumstances, investors may not receive full value, or any value, for their investment.** Since inception, we have experienced recurring operating losses and negative cash flows from operating activities, and have significant accumulated deficit. We expect to continue to generate operating losses and consume significant cash resources for the foreseeable future. We ~~received~~ **believe that with receipt of the** net proceeds **in April 2024** of approximately \$ 75.2 million, after deducting placement agent fees and offering expenses from the issuance and sale of our securities pursuant to **April Registered Direct Offering, July 2024 from** the Purchase Agreement in **July 2024 Offering, October 2023-2024 from the October 2024 Offering**, as amended **January 2025 from the January 2025 Offering and May 2024 from the transaction** pursuant to that certain letter securities purchase agreement dated May 24, 2024 and amended on December 31, 2024, between us and certain accredited investors and JGB Collateral LLC, as collateral agent for the **investors** (the “ **Letter JGB Purchase Agreement** ”) and **Amendment to the restructuring Registered Note** (the “ **Amendment** ”) entered into by us with the Purchaser of the Notes **redemption terms for our debt instruments** in February **January 2024 2025**. ~~Based on our current business plans~~, we believe such net proceeds together with ~~our~~ **the Company’s** existing cash and cash equivalents and short- term investments, **and after taking into account inaccessible “ restricted cash ” under the terms of the transaction under the JGB Purchase Agreement, based on the Company’s current business plans** we will be **sufficient able** to fund our operating expenses and capital expenditure requirements into ~~at least the third~~ **first** quarter of 2024 **2026**. This estimate assumes the inclusion of the amount equal to the sum of (i) the outstanding principal amount of the Registered Notes plus (ii) approximately \$ 0.7 million that we are required to hold as restricted cash in an account control agreement under the terms of the Registered Notes. See Note 9 **and 10** (**High Trail Agreement Debt and Stockholders’ Equity and Stock- Based Compensation**) to our consolidated financial statements **included elsewhere in this Annual Report** for a further discussion of our recent debt **and equity financing financings**. Our existing cash and cash equivalents and short- term investments ~~will~~ not be sufficient for us to achieve cash- flow break even and we expect to need to seek additional capital based on favorable market conditions or strategic considerations alternatives in the future. Without additional financing, these conditions raise substantial doubt about our ability to continue as a going concern, meaning that we may be unable to continue operations for the foreseeable future or realize assets and discharge liabilities in the ordinary course of operations. As a

result, our financial statements include an explanatory paragraph expressing substantial doubt about our ability to continue as a going concern. **We will continue** ~~If we are unable to obtain~~ **seek to raise additional capital, but without** sufficient **additional funding**, our business, prospects, financial **financing** condition and results of operations **in the near term we** will **not** be materially and adversely affected and we may be unable ~~to continue as a going concern~~ **able** to continue as a going concern. ~~If we are unable to continue as a going concern~~, we may have to **reorganize or** liquidate our ~~assets~~ **business** and may receive less than the value at which those assets are carried on our consolidated financial statements, **further curtail planned operations or cease operations entirely** and **it is likely that wind down our business**. Any of these could materially and adversely affect our liquidity, financial condition and business prospects and, as a result, our investors will ~~may~~ lose all or a part of their investment. ~~Future reports from~~ **In light of our existing cash and cash equivalents and our current obligations, such a liquidation our** ~~or disposition process~~ independent registered public accounting firm may also contain statements expressing doubt about our ~~ability subject to continue as a going concern~~ **bankruptcy protections, which may further reduce the value that we may receive for our assets**. If we seek additional financing to fund our business activities in the future and there remains doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding on commercially reasonable terms or at all. **Our corporate cash saving initiatives and the associated headcount reductions we announced in May 2023, October 2023 and March 2024 could disrupt our business, and may not achieve our intended objectives. In May 2023, October 2023 and March 2024, we undertook a cash savings initiative that included a** reduction in force. These initiatives may be disruptive to our operations ~~and there is no guarantee that they will achieve the intended benefits~~. For example, our headcount reductions could yield unanticipated consequences and costs, such as increased difficulties in implementing our business strategy due to the loss of institutional knowledge and expertise, reduced strength of our sales force and marketing efforts, attrition beyond the intended number of employees, decreased morale among our remaining employees, and the risk that we may not achieve the anticipated benefits of the reduction in force. In addition, while certain positions have been eliminated, certain functions necessary to our operations remain, and we may be unsuccessful in distributing the duties and obligations of departed employees among our remaining employees. The reduction in workforce could also make it difficult for us to pursue, or prevent us from pursuing, new opportunities and initiatives, including restricting the strength of our sales force and marketing efforts, due to insufficient personnel, or require us to incur additional and unanticipated costs to hire new personnel to pursue such opportunities or initiatives. Moreover, ~~any~~ employee litigation related to the headcount reductions could be costly and prevent management from fully concentrating on the business. In addition, Bionano Laboratories' **planned** phase out of the offering of certain testing services related to ~~neurodevelopmental disorders (“NDDs”)~~, including ~~autism spectrum disorders (“ASDs”)~~, and other disorders of childhood development could have a negative impact on our cash flow, financial conditions or results of operations. In 2023, these products generated approximately \$ 7.0 million of our overall \$ 36.1 million in revenues. ~~Further, our reduction in personnel through these headcount reductions and voluntary attrition could limit our ability to segregate responsibility for certain accounting and related treasury functions within our organization.~~ Our future financial performance and our ability to develop our product candidates or additional assets will depend, in part, on our ability to effectively manage future growth or restructuring, as the case may be. In addition, if we are unable to realize the anticipated benefits from our ~~cost~~ **cash saving savings** initiatives including those we discussed under “ Part II. Item 7. Management’ s Discussion and Analysis of Operations – Liquidity and Capital Resources ”, or if we experience significant adverse consequences of such ~~initiatives~~ **initiative**, our business, financial condition, and results of operations may be materially **adversely affected**. We are an early commercial- stage company and have a limited commercial history, which may make it difficult to evaluate our current business and predict our future performance. We are an early commercial- stage company and have a limited commercial history. Our limited commercial history may make it difficult to evaluate our current business and, especially when combined with the other risk factors listed in this section, makes predictions about our future success or viability subject to significant uncertainty. ~~In particular~~ **For example, in recent years** we had significantly ~~increased~~ **grew** our headcount through ~~recent~~ acquisitions of other businesses and, the expansion of our sales, marketing and research and development teams, ~~and, more recently, have undertaken several rounds of reductions to our work force and the discontinuation of certain product offerings, all of~~ which has increased ~~have resulted in significant fluctuations in~~ our operating costs in a manner not historically reflected in our consolidated financial statements. Because our business model has evolved over time, ~~and~~ **may continue to evolve** combined with our recent acquisitions, this has impacted the composition and concentration of our revenues, ~~and~~ which **may** we expect to continue to change with ~~any~~ **in the** future ~~acquisitions and further expansion of our operations~~. These changes in revenue and expenses, among others, may make it difficult to evaluate our current business, assess our future performance relative to prior performance and accurately predict our future performance. We have encountered in the past, and will continue to encounter in the future, risks and difficulties frequently experienced by early commercial- stage companies, including those associated with scaling up our infrastructure, increasing ~~and decreasing~~ the size of our organization, integrating acquired businesses and implementing cost ~~savings~~ **saving** initiatives. If we do not address these risks successfully, or if our assumptions regarding these risks and uncertainties are incorrect or change over time, our results of operations could differ materially from our expectations and our business, financial condition and results of operations could be materially and adversely affected. Our quarterly and annual operating results and cash flows have fluctuated in the past and might continue to fluctuate, which makes our future operating results difficult to predict and could cause the market price of our securities to decline substantially. Numerous factors, many of which are outside our control, may cause or contribute to significant fluctuations in our quarterly and annual operating results. These fluctuations may make financial planning and forecasting uncertain and may result in unanticipated decreases in our available cash, which could negatively affect our business and prospects. In addition, one or more of such factors may cause our revenue or operating expenses in one period to be disproportionately higher or lower relative to the other periods. As a result, comparing our operating results on a period- to- period basis might not be meaningful. You should not rely on our past results as indicative of our future performance. Moreover,

our stock price might be based on expectations of future performance that are unrealistic or that we might not meet and, if our revenue or operating results fall below the expectations of investors or securities analysts, the price of our securities could decline substantially. Our operating results have varied in the past. In addition to other risk factors listed in this section, some of the important factors that, alone or together, may cause fluctuations in our quarterly and annual operating results include:

- adoption of our OGM solutions on our OGM systems, Ionic [®] Purification system or successor systems;
- our successful creation of an end-to-end solution for OGM;
- execution on our commercial and reimbursement strategy involving Bionano Laboratories;
- customer demand for ~~our current BioDiscovery~~ software solutions, including VIA [™] software, and future software solutions developed through ~~this BioDiscovery's~~ platform;
- the position of our ~~Purigen business in the~~ DNA isolation ~~space of business in~~ genome analysis ~~space~~ and customer demand for our Ionic [®] Purification system;
- the timing of customer orders and payments and our ability to recognize revenue;
- the rate of utilization of consumables by our customers;
- reductions in or other difficulties relating to staffing, capacity, shutdowns or slowdowns of laboratories and other institutions in our customer base, such as reduced or delayed investment in new technologies or spending on products, technologies or consumables;
- differences in purchasing patterns across our customer base, including potential differences in consumables spending between earlier adopters of our technologies and more recent customers and variances in rates of increase of consumables spending following new technology purchases;
- geopolitical and macroeconomic developments, such as the conflict between Ukraine and Russia and related sanctions, conflicts in the ~~middle~~ ~~Middle east~~ ~~East~~, potential future disruptions in access to bank deposits or lending commitments due to bank failures, global pandemics, inflation, increased cost of goods, supply chain issues, and global financial market conditions;
- our ability to successfully integrate new personnel, technology and other assets that we may acquire into our company;
- any cost saving and restructuring initiatives **and our ability to successfully maintain our business operations and customer support at historic levels**;
- the timing of the introduction of new systems, products, technologies, system and product enhancements and services;
- changes in governmental funding of life sciences research and development or other changes that impact budgets, budget cycles or seasonal or other spending patterns of our customers;
- future accounting pronouncements or changes in our accounting policies; and
- the outcome of any current or future litigation or governmental investigations involving us or other third parties with whom we do business.

In addition, a significant portion of our operating expenses are relatively fixed in nature, including our existing and ~~recently~~ acquired leases, and planned expenditures are based in part on expectations regarding future revenue. Accordingly, unexpected revenue shortfalls could decrease our gross margins and cause significant changes in our operating results from quarter to quarter. If this occurs, the trading price of our securities could fall substantially. This variability and unpredictability caused by factors such as those described above and elsewhere in this section could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. **Further our financial condition may result in certain additional restructuring or advisory expenses which may result in our corporate expenditures increasing, potentially materially, and we may observe fluctuations in the cash used in operating activities on a quarterly basis to sustain our current commercial offerings.** If our revenue or operating results fall below the expectations of analysts or investors or below any guidance we may provide, or if the guidance we provide is below the expectations of analysts or investors, the price of our securities could decline substantially. Such a stock price decline could occur even when we have met or exceeded any previously publicly stated guidance or expectations. If we are unable to maintain adequate revenue growth or do not successfully manage such growth, our business and growth prospects will be harmed. We may not achieve substantial growth rates in future periods. **In particular as part of our cost saving plans we have also made a change in its business strategy and refocused our efforts on the current installed base of OGM systems with less emphasis on new placements of OGM systems and more emphasis on ensuring customers are able to maximize their utilization of the OGM systems.** Investors should not rely on our operating results for any prior periods as an indication of our future operating performance. To effectively manage ~~any our anticipated~~ future growth, we must continue to maintain and enhance our financial, accounting, manufacturing, customer support and sales administration systems, processes and controls, and to integrate such systems, processes and controls into our ~~newly~~ acquired businesses. Failure to effectively manage ~~our anticipated~~ **any future** growth could lead us to over-invest or under-invest in development, operational and administrative infrastructure; result in weaknesses in our infrastructure, systems, or controls; give rise to operational mistakes, losses, loss of customers, productivity or business opportunities; and result in loss of employees and reduced productivity of remaining employees. ~~Our~~ **Any** continued growth is likely to require significant capital expenditures and might divert financial resources from other projects such as the development or integration of new products, technologies and services. As additional products and technologies are commercialized, we may need to incorporate new equipment, implement new technology systems, or hire new personnel with different qualifications. Failure to manage this growth or transition could result in turnaround time delays, higher product costs, declining product quality, deteriorating customer service, and slower responses to competitive challenges. A failure in any one of these areas could make it difficult for us to meet market expectations for our products and technologies, and could damage our reputation and the prospects for our business. If our management is unable to effectively manage ~~any our anticipated~~ growth, our expenses may increase more than expected, our revenue could decline or grow more slowly than expected and we may be unable to implement our business strategy. The quality of our products, technologies and services may suffer, which could negatively affect our reputation and harm our ability to retain and attract customers. Our future capital needs are uncertain and we ~~may will~~ require additional funding in the future to advance the commercialization of our OGM systems, Ionic [®] Purification system, VIA [™] software, and our other products, technologies and services, as well as continue our research and development efforts. If we fail to obtain **sufficient** additional funding, we will be forced to delay, reduce or eliminate **significant portions of** our commercialization and development efforts **which could negatively impact our revenue opportunities**. Our operations have consumed substantial amounts of cash since our inception. We expect to continue to spend substantial amounts of cash in order to continue the commercialization of our products and technologies, fund our research and

development programs, and execute potential strategic transactions. In connection with the preparation of our financial statements for the fiscal year ended December 31, 2023-2024, we performed an analysis of our ability to continue as a going concern ~~and~~. We believe, based on our current business plan, ~~we believed~~ that our existing cash and cash equivalents and short-term investments ~~will would~~ not be sufficient for the next twelve months from the issuance of ~~our~~ **the consolidated financial statements included in this Annual Report Report for and, accordingly, the there** fiscal year ended December 31, 2023 **continued to be substantial doubt about our ability to continue as a going concern within 12 months of the issuance of such financial statements**. Our ability to execute our operating plan depends on our ability to generate sales and obtain additional funding through equity offerings, debt financings or potential licensing and collaboration arrangements. For example, we will ~~likely~~ need to raise substantial additional capital **if we intend** to: • **maintain and** expand our sales and marketing efforts to further commercialize our products, technologies and services and address competitive developments; • **maintain and** expand our research and development efforts to improve our existing products, technologies and services and develop and launch new products, technologies and services, particularly if any of our products, technologies and services are deemed by the U. S. Food and Drug Administration, or FDA, to be medical devices or otherwise subject to additional regulation by the FDA; • pursue a regulatory path with the FDA, or a regulatory body outside the United States, to market our existing RUO products or new products utilized for diagnostic purposes; • lease additional facilities or build- out existing facilities ~~as we continue~~ to grow our inventory and research and development; • further expand our operations **within or** outside the United States; • enter into collaboration arrangements, if any, or in- license products and technologies; • acquire or invest in complementary businesses or assets; **and** • add operational, financial and management information systems ; ~~and~~ • ~~cover increased costs incurred as a result of continued operation as a public company, including costs resulting from our no longer qualifying as an emerging growth company and, if applicable, in the future, loss of our status as a smaller reporting company or changes in our status from a non-accelerated filer to an accelerated filer or large accelerated filer.~~ Our future funding requirements will be influenced by many factors, including: • the cost of integrating our ~~newly~~ acquired businesses or of acquiring future businesses; • market acceptance of our products, technologies and services, and the variability in costs to achieve such acceptance; • the cost and timing of establishing additional sales, marketing and distribution capabilities; • the cost of our research and development activities; • our ability to satisfy any outstanding or future debt obligations ~~including our obligations under the Notes and the Purchase Agreement~~; • **increasing high** interest rates; • supply chain disruptions; • the success of our existing distribution and marketing arrangements and our ability to enter into additional arrangements in the future; • the effects of geopolitical or macroeconomic developments, such as the ongoing military ~~conflict~~ **conflicts** between Russia and Ukraine and **in the Middle East , and** related sanctions, **recent and** the ~~conflicts in the middle east~~, potential future disruptions in access to bank deposits or lending commitments due to bank failures and global pandemics; and • the effect of competing technological and market developments. As of December 31, 2023-2024, we had \$ 17-9 . 2 million in cash and cash equivalents, \$ 48-0 . 83 million in short- term investments, and \$ 35-11 . 5-4 million in restricted cash and cash equivalents and restricted short- term investments -. We received net proceeds of approximately \$ 75-9 . 3 million after deducting placement agent fees and offering expenses, from **the issuance and sale of our securities in the April 2024 Registered Direct Offering; net proceeds of approximately \$ 9. 3 million after deducting placement agent fees and offering expenses, from the issuance and sale of our securities in the July 2024 Offering; net proceeds of approximately \$ 2 . 7 million after deducting placement agent fees and offering expenses,** from the issuance and sale of our securities pursuant to the Purchase Agreement in ~~the~~ **the** October 2023-2024 , a portion **Offering and net proceeds of approximately** which was used to redeem the \$ 17-9 . 03 million ~~after deducting aggregate principal amount outstanding of Private Placement placement Notes agent fees and offering expenses, from the issuance and sale of our securities in February the January 2024-2025 Offering~~ . Based on our current business plans, we believe ~~such the~~ net proceeds **from such financings** together with our existing cash and cash equivalents and short- term investments , **and after taking into account inaccessible “ restricted cash and restricted investments ” under the terms of the JGB Purchase Agreement and that certain settlement and amendment, dated December 31, 2024, with certain accredited investors and JGB (the “ Debentures Amendment ”)** , will be sufficient to fund our operating expenses and capital expenditure requirements into at least the ~~third first~~ **third first** quarter of 2024-2026 . ~~Nevertheless, our~~ This estimate assumes the inclusion of the amount equal to the sum of (i) the outstanding principal amount of the Registered Notes plus (ii) approximately \$ 0. 7 million that we are required to hold as restricted cash in an account control agreement under the terms of the Registered Notes. Our existing cash and cash equivalents and short- term investments, will not be sufficient for us to achieve cash- flow break even and we expect to need to seek additional capital in the near future. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect, requiring us to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. **The various ways we could raise additional capital carry potential risks.** We cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all . ~~If we raise additional funds by issuing equity or equity- linked securities, our stockholders may experience dilution.~~ Any equity or debt securities we issue could provide for rights, preferences, or privileges senior to those of holders of our common stock. Future debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or equity financing may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. In addition, we may not be able to access a portion of our existing cash and cash equivalents and short- term investments or “ restricted cash ~~or and~~ restricted investments ” in the account control agreement due to market conditions such as **recent and** potential future disruptions in access to bank deposits or lending commitments due to bank failures . **Based on our current business plans, we will continue to require additional capital in the very near term to fund our operating expenses and capital expenditure requirements, or we may need to further curtail or cease operations and seek protection by filing a voluntary petition for**

relief under the United States Bankruptcy Code. If this were to occur, the value available to our various stakeholders, including our creditors and stockholders, is uncertain and trading prices for our securities may bear little or no relationship to the actual recovery, if any, by holders of our securities in bankruptcy proceedings, if any. Global economic conditions have been ~~worsening~~ **challenging**, with disruptions to, and volatility in, the credit and financial markets in the U. S. and worldwide resulting from the effects of ongoing geopolitical or macroeconomic developments. If these conditions persist or worsen, we could experience an inability to access additional capital. If we do not have, or are not able to obtain, sufficient funds, we ~~may will~~ have to delay ~~, reduce or eliminate significant portions of our~~ development ~~or and~~ commercialization ~~of efforts related to~~ our technologies and products, any of which could, among other things, negatively impact our revenue opportunities. For example, in September 2024, we decided to focus our efforts on the current installed base of OGM systems with less emphasis on new placements of OGM systems and more emphasis on ensuring customers are able to maximize their utilization of the OGM systems. As a result, we anticipate a reduction in our future product revenue. Bionano Laboratories' phase out of the offering of certain testing services related to NDDs, including ASDs, and other disorders of childhood development could also have a negative impact on our cash flow, financial conditions or results of operations. We also may have to further reduce marketing, customer support or other resources devoted to our products or technologies or cease operations entirely. Any of these factors could have a material adverse effect on our financial condition, operating results and business. Any of the foregoing could significantly harm our business, prospects, financial condition and results of operation and could cause the price of our securities to decline. Any additional fundraising efforts may divert our management from their day- to- day activities, which may adversely affect our ability to conduct our strategic operations. ~~Any failure~~ **You may experience future dilution as a result of future equity offerings. In order to raise additional capital, we may in the future offer additional shares of or our** ~~delay~~ **common stock, or other securities convertible into or exchangeable for our common stock and, as a result, our stockholders may experience dilution. For example, as a result of our April 2024 Registered Direct Offering, July 2024 Offering, October 2024 Offering, and January 2025 Offering, our investors experienced dilution of their ownership interests. We may sell additional shares of our common stock or other securities convertible or exchangeable into common stock** ~~in securing financing~~ **future equity offerings at a price per share that is less than the price per share paid by investors in previous equity offerings, and investors purchasing shares or other securities in the future could impact our ability** ~~have rights superior to existing stockholders~~ **continue as a going concern**. Servicing the ~~Notes~~ **Debentures** requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our obligations under the ~~Notes~~ **Debentures** or our other permitted indebtedness. Our ability to make scheduled payments of principal or default interest, if any, or to refinance the ~~Notes~~ **Debentures** or our other permitted indebtedness, depends on our future performance, which is subject to economic, financial, competitive and other factors, some of which are beyond our control. As of December 31, ~~2023~~ **2024**, we had aggregate principal amount outstanding under the ~~Notes~~ **Debentures** of \$ ~~61.5~~ **5** million. **Notwithstanding the Debentures Amendment pursuant to which we agreed to modify certain terms of the Debentures, including to: reduce the maximum monthly redemption payable to investors from \$ 1.0 million and following the redemptions in February 2024 as described in Note 9 (High Trail Agreement) to our consolidated financial statements we had approximately \$ 24.0** ~~3.5~~ **million outstanding under from January 2025 to July 2025 and increase the Notes** ~~maximum monthly redemption payable to investors from \$ 1.0 million to \$ 1.4 million beginning in August 2025 until the Debentures are repaid in full, our~~ **business may not continue to generate cash flow from operations in the future sufficient to satisfy our obligations under the Notes** ~~Debentures~~ or our other permitted indebtedness. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as reducing or delaying investments or capital expenditures, selling assets, refinancing or obtaining additional equity capital on terms that may be onerous or highly dilutive. ~~We~~ **Following July 31, 2025, we** may only prepay the ~~Notes~~ **Debentures** in full without the consent of the holders under certain circumstances, and our ability to refinance the ~~Notes~~ **Debentures** or our other permitted indebtedness will also depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on the ~~Notes~~ **Debentures** or our other indebtedness. As of December 31, ~~2023~~ **2024**, there is substantial doubt about our ability to continue as a going concern and servicing the ~~Notes~~ **Debentures** continues to impact our cash flow and liquidity. The terms of the ~~Notes~~ **Debentures** and the **Debenture** Purchase Agreement restrict our current and future operations. Upon an event of default under the ~~Notes~~ **Debentures**, we may not be able to make any accelerated payments under the ~~Notes~~ **Debentures** or our other permitted indebtedness. The ~~Notes~~ **Debentures** and the **Debenture** Purchase Agreement contain a number of restrictive covenants that impose significant operating and financial restrictions on us and may limit our ability to engage in acts that may be in our long- term best interest. In particular, the ~~Notes~~ **Debentures** contain customary affirmative and negative covenants (including covenants that limit our ability to incur debt, make investments, transfer assets, engage in certain transactions with affiliates and merge with other companies, in each case, other than those permitted by the ~~Notes~~ **Debentures**, and that require us to maintain a share reserve in respect of the Notes and Registered Warrants (as defined in the Notes to Consolidated Financial Statements)) and events of default, and the ~~Notes~~ **Debentures** and the **Debenture** Purchase Agreement contains customary covenants (including covenants that limit our ability to issue additional securities during specified periods and enter into variable rate transactions). Furthermore, we will be required to maintain ~~:(A) cash or investments and cash equivalents subject to account control agreements in favor of the Purchaser~~ **purchaser** in a minimum amount equal to the ~~sum~~ **lesser of (i) \$ 11.0 million and the outstanding principal amount of the Registered Notes plus (ii) the** ~~approximately \$ 0.7 million; (B) an "at the then outstanding balance market" program, equity line of credit, or similar program approved by the Debentures Purchaser with aggregate available, accessible and unused capacity to generate gross proceeds to us of at least \$ 50 million; and (C) beginning with the fiscal quarter ending March 31, 2024, our and our wholly owned subsidiaries' Available Cash (as defined under the Notes) on the last calendar day of each quarter shall be greater than or equal to (x) our and our~~

wholly owned subsidiaries' cash and cash equivalents on the last day of the immediately preceding fiscal quarter, less (y) \$ 30.0 million. Our ability to meet the financial tests under the Notes-Debentures can be affected by events beyond our control, and we may be unable to meet them. A breach of the covenants or restrictions under the Notes-Debentures and the Debenture Purchase Agreement or under the agreements governing any of our other permitted indebtedness could result in an event of default under the applicable indebtedness. Such a default may allow holders of the Notes-Debentures, if any, or the holders or lenders of our other permitted indebtedness, as applicable, to accelerate the related indebtedness, which may result in the acceleration of other indebtedness to which a cross- acceleration or cross- default provision applies. In addition, such lenders or holders could terminate commitments to lend money, if any. Furthermore, if we were unable to repay the Notes-Debentures or other permitted indebtedness then due and payable, secured lenders could proceed against the assets, if any, securing such indebtedness. In the event such lenders or holders accelerate the repayment of the Notes-Debentures, or our other permitted borrowings, we may not have sufficient assets to repay that indebtedness. A default would also likely significantly diminish the market price of our common stock. Furthermore, as a result of these restrictions, we may be limited in how we conduct and grow our business, be unable to compete effectively or be unable to take advantage of new business opportunities. These restrictions may affect our ability to grow in accordance with our strategy. Unfavorable geopolitical and macroeconomic developments could adversely affect our business, financial condition or results of operations. Our results of operations could be adversely affected by general conditions in the global economy, the global financial markets and adverse geopolitical and macroeconomic developments, including without limitation inflation, potential future disruptions in access to bank deposits or lending commitments due to bank failures, slowing growth, rising interest rates and recession and the conflicts between Ukraine and Russia and in the middle- Middle east East. A severe or prolonged global economic downturn could result in a variety of risks to our business. For example, although inflation rates have been recently declining, particularly in the United States, they remain at levels not seen in years. Continuing high inflation rates may result in decreased demand for our products and services, increases in our operating costs (including our labor costs), prolonged unemployment, reduced liquidity and has limited and may continue to limit our ability to access credit or otherwise raise capital on acceptable terms, if at all. Risks of a prolonged economic downturn are particularly true in Europe, which is undergoing a continued severe economic crisis. A weak or declining economy, regardless of the reason for the decline, could also strain our suppliers, possibly resulting in supply disruption. For example, higher energy prices in Europe are causing an increase in cloud computing expenses, which impacts the cost for us and our partners. Any actual or perceived disruption in our product distribution channel could alter customer buying decisions, prompting customers to delay or cancel their orders, which would negatively impact our sales revenue and could harm our reputation. Additionally, following the invasion of Ukraine by Russia, financial markets around the world experienced volatility. In response to the invasion, the United States, UK and EU, along with others, imposed significant new sanctions and export controls against Russia, Russian banks and certain Russian individuals and may implement additional sanctions or take further punitive actions in the future. The full economic and social impact of the sanctions imposed on Russia (as well as possible future punitive measures that may be implemented), as well as the counter measures imposed by Russia, in addition to the ongoing military conflict between Ukraine and Russia, which could conceivably expand into the surrounding region, remains uncertain; however, both the conflict and related sanctions have resulted, and could continue to result in disruptions to trade, commerce, pricing stability, credit availability, supply chain continuity and reduced access to liquidity, in both Europe and globally, and has introduced significant uncertainty into global markets. In particular, the Russia- Ukraine conflict has contributed to rapidly rising costs of living (driven largely by higher energy prices) in Europe and other advanced economies. As the adverse effects of this conflict continue to develop and potentially spread, both in Europe and throughout the rest of the world, our customers may be negatively impacted, which in turn may cause them to delay purchasing decisions and otherwise depress the level of spend conducted by such customers for our products, technologies and services. Further, a weak or declining economy could strain our suppliers, possibly resulting in additional supply disruption. As a result, our business and results of operations may be adversely affected by the ongoing conflict between Ukraine and Russia and related sanctions, particularly to the extent it escalates to involve additional countries, further economic sanctions or wider military conflict. We have operations, as well as current and potential new customers throughout Europe. If economic conditions in Europe and other key markets for our products and technologies continue to remain uncertain or deteriorate further, we could experience adverse effects on our business, supply chain, partners or customers. Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations. New income, sales, use, excise or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could adversely affect our business operations and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, legislation including the Tax Cuts and Jobs Act of 2017; the Coronavirus Aid, Relief, and Economic Security Act; and the IRA, enacted many significant changes to the U. S. tax laws. Future guidance from the Internal Revenue Service and other tax authorities with respect to such legislation may affect us, and certain aspects of such legislation could be repealed or modified in future legislation. These developments, along with any other future changes in U. S. tax laws could have a material impact on the value of our deferred tax assets, could result in significant one- time charges, and could increase our future U. S. tax expense. In addition, it is uncertain if and to what extent various states will conform to federal tax legislation. Moreover, should the scale of our international business activities expand, any changes in the U. S. taxation of such activities or any other changes in applicable non- U. S. tax laws could increase our worldwide effective tax rate and harm our future financial position and results of operations. Limitations on the ability of taxpayers to claim and utilize foreign tax credits and the deferral of certain tax deductions until earnings outside of the U. S. are repatriated to the U. S., as well as changes to United States tax laws that may be enacted in the future, could impact the tax treatment of future foreign earnings. In addition, effective January 1, 2022, the Tax Cuts and Jobs Act of 2017 eliminated the option to deduct research and development expenses for tax purposes in the year

incurred and requires taxpayers to capitalize and subsequently amortize such expenses over five years for research activities conducted in the United States and over 15 years for research activities conducted outside the United States. Unless the United States Department of the Treasury issues regulations that narrow the application of this provision to a smaller subset of our research and development expenses or the provision is deferred, modified, or repealed by Congress, it could harm our future operating results by effectively increasing our future tax obligations. The actual impact of this provision will depend on multiple factors, including the amount of research and development expenses we will incur, whether we achieve sufficient income to fully utilize such deductions and whether we conduct our research and development activities inside or outside the United States. Our ability to use net operating losses and certain other tax attributes to offset future taxable income and taxes may be subject to limitations. As of December 31, ~~2023~~ **2024**, we had federal and state tax net operating loss carryforwards of \$ ~~394.4 million and \$ 195.0 million~~ **and \$ 159.4 million**, respectively. The federal tax loss carryforwards include \$ ~~370.4 million~~ **27 million** that do not expire, but utilization of such tax loss carryforwards is limited to 80 % of our taxable income. The remaining federal tax loss carryforwards of \$ ~~23.4 million~~ **8.6 million** begin to expire in 2027 unless previously utilized. Our state tax loss carryforwards began to expire in 2024 and will continue to expire unless previously utilized. As of December 31, ~~2023~~ **2024**, we also had federal and California research credit carryforwards of \$ ~~5.1 million and \$ 9.4 million~~ **7.1 million and \$ 9.4 million**, respectively. The federal research credit carryforwards begin to expire in 2027 unless previously utilized. The California research credits carry forward indefinitely. In addition, utilization of our net operating losses and research and development credit carryforwards is subject to limitations due to ownership changes that have occurred or that could occur in the future in accordance with applicable provisions of the Internal Revenue Code of 1986, as amended (the “ Code ”), and corresponding provisions of state law. We have experienced one or more ownership changes in the past and we may also experience additional ownership changes in the future as a result of subsequent changes in our stock ownership, some of which may be outside of our control. The Company performed an ownership change analysis pursuant to Section 382 of the Code and identified that ownership changes occurred on various dates that will limit the Company’s ability to utilize its net operating loss and R & D credit carryforwards. Based on the analysis, the Company’s deferred tax assets related to the tax attributes that will expire unused as a result of the ownership change limitations have been adjusted as of December 31, 2023 with related valuation allowance disclosed above. As a result of limitations arising from the prior ownership changes, \$ 33.0 million of federal and \$ 5.4 million of California net operating loss carry- forwards were removed from the inventory of deferred tax assets. In addition, \$ 6.4 million of federal R & D tax credits were removed from the deferred tax assets as of December 31, 2023. Further, the Company’s deferred tax assets associated with such tax attributes could be significantly reduced upon a future ownership change within the meaning of Section 382 of the Code. **In addition, at the state level, there may be periods during which the use of net operating losses and certain tax credits are suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. For example, on June 27, 2024, California Senate Bill 167 was enacted, which imposes limits for certain taxpayers on the usability of California state net operating losses and certain California state tax credits in tax years beginning on or after January 1, 2024, and before January 1, 2027.** If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our results of operation could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our securities. The preparation of financial statements in conformity with generally accepted accounting principles in the United States, or GAAP, requires management to make estimates and assumptions that affect the amounts reported in our financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. If our assumptions underlying our estimates and judgements relating to our critical accounting policies change or if actual circumstances differ from our assumptions, estimates or judgements, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our securities. **Our corporate cash saving initiatives and the..... operations may be materially adversely affected.** Risks related to our business operations Acquisitions, joint ventures and other strategic transactions could disrupt or otherwise harm our business and may cause dilution to our stockholders. As part of our growth strategy, we have acquired and may continue to acquire other businesses, products or technologies as well as pursue strategic alliances, joint ventures, technology licenses or investments in complementary businesses or assets. We may not be able to locate or make suitable acquisitions on acceptable terms, and future acquisitions may not be effectively and profitably integrated into our business. Our failure to successfully complete the integration of any business or assets that we acquire could have an adverse effect on our prospects, business activities, cash flow, financial condition, results of operations and stock price. Integration challenges may include the following: • disruption in our relationships with our pre- acquisition customers, distributors or suppliers, or in the relationships of our acquired businesses with their pre- acquisition customers, distributors or suppliers, as a result of such a transaction; • unanticipated expenses and liabilities related to acquired companies or assets; • disputes with the seller (s) of any acquired companies or assets or litigation with the seller (s) or third parties resulting from acquired companies or assets; • difficulties integrating acquired personnel, technologies, operations and legal compliance obligations into our existing business; • diversion of management time and focus from operating our business to acquisition integration challenges; • increases in our expenses and reductions in our cash available for operations and other uses; • possible write- offs or impairment charges relating to acquired businesses or assets; • difficulties developing and marketing new products, technologies and services or integrating new products, technologies and services into our commercial plan; • entering markets in which we have limited or no prior experience; and • coordinating our efforts throughout various localities and time zones. Foreign acquisitions involve unique risks in addition to those mentioned above, including those related to integration of operations across different cultures and languages, currency risks and the particular economic, political and regulatory risks associated with specific countries. In

addition, in connection with any such transactions, we may also issue equity securities in a dilutive manner, incur additional debt, assume contractual obligations or liabilities or expend significant cash. Such transactions could harm our operating results and cash position, negatively affect the price of our stock and cause dilution to our current stockholders. For example, in connection with **the amendment of our Debentures on December 31, 2024, we issued approximately 83,000 shares of our common stock (as adjusted for the reverse stock split), in** our acquisition of Lineagen, a U. S.- based provider of proprietary molecular diagnostics services for individuals presenting with certain neurodevelopmental disorders, we issued ~~0.6 million~~ **approximately 10,000** shares of our common stock **(as adjusted for the reverse stock split)**, in our acquisition of BioDiscovery, a U. S.- based software company with solutions for analysis, interpretation and reporting of genomics data, we paid upfront consideration consisting of a combination of approximately \$ 52.3 million in cash and ~~0.3 million~~ **approximately 5,000** shares of our common stock **(as adjusted for the reverse stock split)**, and in our acquisition of Purigen, a U. S.- based DNA and RNA extraction company, we paid upfront consideration of approximately \$ 32.0 million in cash. In connection with the acquisition of BioDiscovery, we issued an additional ~~0.5 million~~ **approximately 8,000** shares of our common stock **(as adjusted for the reverse stock split)** subject to vesting based on continued service of a key employee. These shares vested in full on October 4, 2022. The issuances of shares in connection with the Lineagen and BioDiscovery acquisitions resulted in dilution to our existing stockholders, the payment of cash in the BioDiscovery acquisition reduced our cash by approximately \$ 52.3 million, the payment of cash in the Purigen acquisition reduced our cash by approximately \$ 32.0 million, our headcount increased by more than 75 employees as a result of all three acquisitions, and we acquired new leases in each acquisition. Accordingly, in addition to transaction costs, these acquisitions have increased our operating expenses, further increasing our net losses. We cannot predict the number, timing or size of any future strategic transactions, or the effect that any such transactions might have on our operating results. Although we conducted extensive business, financial and legal due diligence in connection with our evaluation of our recent acquisitions, our due diligence investigations may not have identified every matter that could adversely affect our business, operating results and financial condition, and such investigations may have identified matters that, in the opinion of our management based on information available at the time, bore an acceptable level of risk that they, individually or in the aggregate, might or might not adversely affect our business, operating results or financial condition. We may be unable to adequately address the financial, legal and operational risks introduced by our recent acquisitions and may have difficulty developing experience with the industries in which Lineagen, BioDiscovery and / or Purigen operate. Accordingly, we cannot guarantee that our recent acquisitions will yield the results we have anticipated and unforeseen complexities and expenses may arise. In addition, we may not achieve the revenues, growth prospects and synergies expected from these recent acquisitions, and any such benefits we do achieve may not offset our increased costs, resulting in ~~an a~~ **potential impairment of goodwill or other assets that were acquired . For example, we fully impaired goodwill in 2023 and further impaired all of the Purigen and Lineagen intangible assets in 2024**. For any future acquisitions, we may similarly be unable to achieve revenue, growth prospects and synergies in a manner consistent with our expectations. Our failure to do so could adversely affect our business, operating results and financial condition. If our products or technologies fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected. Our success depends on our ability to develop and market products and technologies that are recognized and accepted as reliable, enabling and cost- effective. Most of the potential customers for our products and technologies already use expensive research systems in their laboratories that they have used for many years and may be reluctant to replace those systems with ours. Market acceptance of our systems will depend on many factors, including our ability to demonstrate to potential customers that our technology is an attractive alternative to existing technologies. Compared to some competing technologies, our technology is new and complex, and many potential customers have limited knowledge of, or experience with, our products and technologies. Prior to adopting our systems, some potential customers may need to devote time and effort to testing and validating our systems. Any failure of our systems to meet these customer benchmarks could result in potential customers choosing to retain their existing systems or to purchase systems other than ours. In addition, it is important that our gene mapping and DNA isolation systems be perceived as accurate and reliable by the scientific and medical research community as a whole. The scientific community is comprised of a small number of early adopters and key opinion leaders who significantly influence the rest of the community. Historically, a significant part of our sales and marketing efforts has been directed at demonstrating the advantages of our technology to industry leaders, including those key opinion leaders, and encouraging such leaders to publish or present the results of their evaluation of our system. If we are unable to continue to motivate leading researchers to use our technology, or if such researchers are unable to achieve or unwilling to publish or present significant experimental results using our systems, acceptance and adoption of our systems will be slowed and our ability to increase our revenue would be adversely affected. We also run the risk that researchers may produce publications or presentations with findings that are negative about our technologies or systems, and that such findings may be due to factors outside of our control, which may also slow acceptance and adoption of our systems and adversely affect our ability to increase our revenue. Equity issuances in connection with strategic transactions or raising additional capital may cause dilution to our stockholders or restrict our operations. From time to time, we expect to finance our strategic transactions or cash needs through a combination of equity and debt financings. To the extent that we finance our strategic transactions or raise additional capital through the sale of equity or convertible debt securities, your ownership interest could be diluted and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends and may be secured by all or a portion of our assets. In March 2021, we entered into a Sales Agreement with Cowen and Company, LLC (“ Cowen ”) which provides for the sale, in our sole discretion, of shares of our common stock having a maximum aggregate offering price of up to \$ 350.0 million through or to Cowen, acting as sales agent or principal, which we amended in March 2023 to decrease the maximum aggregate offering price to \$ 200.0 million ~~going forward~~ **for sales made on and after the date of the amendment** (the “ Cowen ATM

”). In For the fiscal year ended December 31, 2022-2024, we sold approximately 0.75 million shares of common stock (as adjusted for the reverse stock split) under the Cowen ATM for gross proceeds of approximately \$ 23-21.14 million before deducting offering costs. On February 4 In the year ended December 31, 2023-2025, the Company provided notice we sold approximately 12.5 million shares of common stock under its termination, effective February 14, 2025, of the Cowen ATM for gross proceeds of approximately \$ 57.8 million before deducting offering costs. Further the conversion of the Notes, and the exercise of the Registered Warrants (as defined below) issued in the Offering and Private Placement in October 2023 Offering (as amended in February 2024 and as defined below) will dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of the Notes or exercise of the Registered Warrants. In addition, if the Purchaser exercises its option to purchase the Subsequently Purchased Notes (as defined in Note 9 (High Trail Agreement) to our consolidated financial statements) and warrants, this will dilute the ownership interests of existing stockholders further to the extent we deliver shares upon conversion of such Subsequently Purchased Notes and exercise of the warrants. Any sales in the public market of the common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the Notes Debentures and Registered Warrants may encourage short selling by market participants because the conversion of the Notes Debentures and exercise of the Registered Warrants could be used to satisfy short positions, or anticipated conversion of the Notes Debentures or exercise of the Registered Warrants into shares of our common stock could depress the price of our common stock. In addition, we issued shares of our common stock in connection with our acquisitions of Lineagen and BioDiscovery. We also issued shares of our common stock in connection with the April 2024 Registered Direct Offering pursuant to which we agreed to issue and sell to certain institutional investors (i) an aggregate of approximately 109,000 shares of common stock, (ii) pre-funded warrants to purchase up to an aggregate of approximately 37,000 shares of common stock and (iii) warrants to purchase up to approximately 146,000 shares of common stock (in each case, as adjusted for the reverse stock split). Additionally, we issued shares of our common stock in connection with the July 2024 Registered Direct Offering pursuant to which we agreed to issue and sell to certain institutional investors (i) an aggregate of approximately 195,000 shares of common stock, (ii) pre-funded warrants to purchase up to an aggregate of approximately 97,000 shares of common stock and (iii) warrants to purchase up to approximately 584,000 shares of common stock (in each case, as adjusted for the reverse stock split). In connection with the October 2024 Offering, we agreed to issue and sell to certain institutional investors (i) an aggregate of approximately 165,000 shares of common stock and (ii) warrants to purchase up to approximately 330,000 shares of common stock (in each case, as adjusted for the reverse stock split). In connection with the January 2025 Offering, we agreed to issue and sell to certain institutional investors (i) an aggregate of approximately 382,000 shares of common stock, (ii) pre-funded warrants to purchase up to an aggregate of approximately 280,000 shares of common stock, and (iii) warrants to purchase up to approximately 661,000 shares of common stock (in each case, as adjusted for the reverse stock split). As a result of these issuances, our investors experienced dilution of their ownership interests. Any future significant sales of our capital stock or strategic transactions in which we use equity as consideration would result in further dilution to our current stockholders. As a result of these issuances, our investors experienced dilution of their ownership interests. The issuance of shares under awards granted under existing or future employee equity benefit plans may cause immediate and substantial dilution to our existing stockholders. In order to provide persons who have a responsibility for our management and / or growth with additional incentive, to increase their proprietary interest in our success, and to support and increase our ability to attract and retain individuals of exceptional talent, we maintain multiple equity incentive plans. As of December 31, 2023-2024, we had outstanding equity awards underlying those plans accounting for 3-0.3-1 million underlying shares (as adjusted for the reverse stock split). The total number of shares of our common stock available for the grant of awards under these plans is approximately 53,000, 1-3 million, 000 1-3 million and 0-1 million 5,000 (as adjusted for the reverse stock split) for our 2018 Equity Incentive Plan, as amended, 2018 Employee Stock Purchase Plan and 2020 Inducement Plan, as amended, respectively, subject to adjustment, including pursuant to automatic “ evergreen ” increases in certain of our plans. We may also adopt one or more additional employee equity benefit plans in the future. The issuance of shares under an employee equity benefit plan may result in substantial dilution to the interests of other stockholders. For example on February 15, 2023, our board of directors granted our executive officers options to purchase an aggregate of 0.3 million shares of our common stock, and 0.1 million restricted stock units (“ RSUs ”), which represented approximately 0.7 % of our outstanding shares of common stock based on the 54.7 million shares of common stock outstanding as of February 29, 2024. Accordingly, the issuance of shares under current or future employee equity benefit plans will have the effect of further diluting the proportionate equity interest and voting power of holders of our common stock. If we are unable to execute our sales and marketing strategy for our Bionano Laboratories products and services, including diagnostic assays, and are unable to gain acceptance in the market, we may be unable to generate sufficient revenue to sustain our Bionano Laboratories business. Our Bionano Laboratories business provides molecular diagnostics services and has engaged in only limited sales and marketing activities for the diagnostic assays currently offered through our CLIA- certified laboratory. To date, the revenue generated by our Bionano Laboratories business has been insufficient to fund operations. Although we believe that our current assays and our planned future assays represent a promising commercial opportunity, our products or assays may never gain significant acceptance in the marketplace and therefore may never generate substantial revenue or profits for us. We will need to further establish a market for our products and diagnostic assays and build that market through physician education, awareness programs and the publication of clinical trial results. Gaining acceptance in medical communities requires, among other things, publications in leading peer- reviewed journals of results from studies using our current products, assays and services and / or our planned future products, assays and services. The process of publication in leading medical journals is subject to a peer review process and peer reviewers may not consider the results of our studies sufficiently novel or worthy of publication. Failure to have future studies published or studies published in peer- reviewed journals, or the publication of other studies in peer-

reviewed journals that contradict our previously published studies, could limit the adoption of our current products, assays and services and our planned future products, assays and services. For example, **during on March 1, 2024, we decided to phase phased out the offering offerings by of** Bionano Laboratories of certain testing services related to NDDs, including ASDs, and other disorders of childhood development. In 2023, these products generated approximately \$ 7. 0 million of our overall \$ 36. 1 million in revenues , **and in 2024, these revenues were immaterial**. Our ability to successfully market the products and diagnostic assays that we have developed, and may develop in the future, will depend on numerous factors, including: • conducting clinical utility studies of such assays in collaboration with key thought leaders to demonstrate their use and value in important medical decisions such as treatment selection; • whether our current or future partners, vigorously support our offerings; • the success of our sales **force efforts**; • whether healthcare providers believe such diagnostic assays provide clinical utility; • whether the medical community accepts that such diagnostic assays are sufficiently sensitive and specific to be meaningful in patient care and treatment decisions; • our ability to continually source raw materials, shipping kits and other products that we sell or consume in our manufacturing process that are of sufficient quality and supply; • our ability to continue to fund planned sales and marketing activities; and • whether private health insurers, government health programs and other third- party payors will adopt our current and future assays in their guidelines, or cover such diagnostic assays and, if so, whether they will adequately reimburse us. Geopolitical and macroeconomic developments, such as potential future disruptions in access to bank deposits or lending commitments due to bank failures, may also increase the risk and uncertainty of the events described above and delay our development timelines. Failure to achieve widespread market acceptance of our current products, assays and services, as well as our planned future products, assays and services, would materially harm our business, financial condition and results of operations. In the near term, sales of our OGM systems, Ionic ® Purification system, VIA ™ software, consumables and genome analysis services will depend on levels of research and development spending by clinical research laboratories, academic and governmental research institutions and biopharmaceutical companies, a reduction in which could limit demand for our technologies and products and adversely affect our business and operating results. In the near term, we expect that our revenue from sales of our OGM systems, Ionic ® Purification system, VIA ™ software, consumables and OGM services will be derived primarily from sales to academic and governmental research institutions, and academic and commercial clinical laboratories, as well as biopharmaceutical and contract research companies worldwide for research applications. The demand for our products and technologies will depend in part upon the research and development budgets of these customers, which are impacted by factors beyond our control, such as: • changes in government programs that provide funding to research institutions and companies; • changes in the regulatory environment; • scientists' and customers' opinions of the utility of new products, technologies or services; • reductions in or other difficulties relating to, among other things, staffing, capacity, shutdowns or slowdowns of laboratories and other institutions as well as other impacts stemming from various geopolitical and macroeconomic developments, such as the conflict between Ukraine and Russia and -related sanctions, the conflicts in the **middle-Middle east East**, potential future disruptions in access to bank deposits or lending commitments due to bank failures and global pandemics. • differences in budgetary cycles; and • market acceptance of relatively new technologies, such as ours. In addition, our operating results may fluctuate substantially due to reductions and delays in research and development expenditures by our customers. Any decrease in customers' budgets or expenditures, including impacts stemming from various geopolitical and macroeconomic developments, or in the size, scope or frequency of capital or operating expenditures, could materially and adversely affect our business, operating results and financial condition. **Our recent decision to focus our efforts on the current installed base of OGM systems with less emphasis on new placements of OGM systems and more emphasis on ensuring customers are able to maximize their utilization of the OGM could also have a negative impact on our cash flow, financial conditions or results of operations**. The sales cycle for our systems can be lengthy and variable, which makes it difficult for us to forecast revenue and other operating results. The sales process for our systems generally involves numerous interactions with multiple individuals within an organization, and often includes in- depth analysis by potential customers of our technology and products and a lengthy review process. Our customers' evaluation processes often involve a number of factors, many of which are beyond our control. As a result of these factors, the capital investment required to purchase our systems and the budget cycles of our customers, the time from initial contact with a customer to our receipt of a purchase order can vary significantly. Given the length and uncertainty of our sales cycle, we have in the past experienced, and expect to in the future experience, fluctuations in our sales on a period- to- period basis. In addition, any failure to meet customer expectations could result in customers choosing to retain their existing systems, use existing assays not requiring capital equipment or purchase systems other than ours. Our long- term results depend upon our ability to improve existing products and technologies and introduce and market new products and technologies successfully. Our business is dependent on the continued improvement of our existing products and technologies and our development of new products and technologies utilizing our current or other potential future technology. As we introduce new products or technologies or refine, improve or upgrade versions of existing products or technologies, we cannot predict the level of market acceptance or the amount of market share these products or technologies will achieve, if any. Consistent with our strategy of offering new products and product refinements, we expect to continue to use a substantial amount of capital for product development and refinement. We may need additional capital for product development and refinement than is available on terms favorable to us, if at all, which could adversely affect our business, financial condition or results of operations. We generally sell our products and technologies in industries that are characterized by rapid technological changes, frequent new product and technology introductions and changing industry standards. If we do not develop new products and technologies and product and technology enhancements based on technological innovation on a timely basis, our products and technologies may become obsolete over time and our revenues, cash flow, profitability and competitive position will suffer. Our success will depend on several factors, including our ability to: • correctly identify customer needs and preferences and predict future needs and preferences; • allocate our research and development funding to products and technologies with higher growth prospects; • anticipate and respond to our

competitors' development of new products and technological innovations; • innovate and develop new technologies and applications, including software applications through our BioDiscovery subsidiary, and acquire or obtain rights to third- party technologies that may have valuable applications in the markets we serve; • our ability to successfully market our **products** ~~Ionic Purification system through our Purigen business~~; • successfully commercialize new technologies in a timely manner, price them competitively and manufacture and deliver sufficient volumes of new products of appropriate quality on time; and • customers' willingness to adopt new technologies. In addition, if we fail to accurately predict future customer needs and preferences or fail to produce viable technologies, we may invest heavily in research and development of products and technologies that do not lead to significant revenue. For example, we completed the Purigen acquisition in November 2022 and **have devoted and** will need **to continue** to devote time and resources in order to further develop and integrate Purigen's Ionic **®** Purification system for our current and anticipated product offerings. We may be unsuccessful in achieving our desired results or in marketing such solutions to our future customers. Even if we successfully innovate and develop new products and technologies and product and technological enhancements, we may incur substantial costs in doing so, and our profitability may suffer. Our ability to develop new products and technologies based on innovation can affect our competitive position and often requires the investment of significant resources. Difficulties or delays in research, development or production of new products, technologies and services or failure to gain market acceptance of new products and technologies may reduce future revenues and adversely affect our competitive position. If we do not successfully manage the development and launch of new products and technologies, our financial results could be adversely affected. We face risks associated with launching new products and technologies. If we encounter development or manufacturing challenges or discover errors during our product or technology development cycle, the launch dates of new products and technologies may be delayed. The expenses or losses associated with unsuccessful product and technology development or launch activities or lack of market acceptance of our new products and technologies could adversely affect our business or financial condition. Our future success is dependent upon our ability to further penetrate our existing customer base, attract new customers and retain the customers of our acquired businesses. Our current customer base for our products and technologies is primarily composed of academic and governmental research institutions and biopharmaceutical and contract research companies and, for our Bionano Laboratories diagnostic services, physicians and their patients. Our success will depend upon our ability to respond to the evolving needs of, and increase our market share among, existing customers and additional potential customers, marketing new products, technologies and services as we develop them. Our successes will also depend on our ability to maintain relationships with the customers of our acquired businesses. Identifying, engaging and marketing to customers who are unfamiliar with our current products and technologies requires substantial time, expertise and expense and involves a number of risks, including: • our ability to attract, retain and manage the sales, marketing and service personnel necessary to expand market acceptance for our technology; • the time and cost of maintaining and growing a specialized sales, marketing and service force; and • the fact that our sales, marketing and service force may be unable to execute successful commercial activities. We have utilized third parties to assist with sales, distribution and customer support in certain regions of the world. We may be unsuccessful in attracting desirable sales and distribution partners. We may also be unable to enter into arrangements with such partners on favorable terms. Any failure of our sales and marketing efforts, or those of any third- party sales and distribution partners, could adversely affect our business. The size of the markets for our products and technologies may be smaller than we estimate, and new markets may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products and technologies. The market for our OGM- based products and technologies is evolving, making it difficult to predict with any accuracy the market opportunity for our current and future products and technologies. Our estimates of the total addressable market for our current and future products and technologies are based on a number of internal and third- party estimates and assumptions. Both our current market opportunity estimates for cytogenomics and discovery research and our potential future market opportunity estimates, including newborn screening, population genomics, neurological and cardiological risk assessment, and cell bioprocessing quality control, are forward- looking statements and are subject to significant risks and uncertainties. While these were prepared in good faith, we cannot provide assurances as to future results or events because these estimates are dependent in part on, among other things, anticipated demand for OGM instruments, complementary capabilities of OGM and NGS, and expected consumption of chips and sample prep and labeling kits. In particular, these estimates are based on current and projected selling prices for instruments and consumables, each of which is subject to change over time and may be drastically affected without warning due to matters outside of our control, including geopolitical and macroeconomic developments. The estimates and assumptions underlying our addressable market opportunities also involve significant judgments with respect to, among other things, future economic, competitive, regulatory, market and financial conditions, as well as future customer demand, business decisions and corporate opportunities that may not be realized, and that are inherently subject to significant business, economic, competitive and regulatory risks and uncertainties, all of which are difficult to predict and many of which are outside of our control. For example, as interest rates continue to rise, our customers may be unable to deploy additional capital to purchase, or may re- prioritize their budget away from, our products and technologies. In addition, our underlying assumptions and estimates may prove to be inaccurate and our financial objectives may not be realized, and therefore our actual results may differ materially from our estimated addressable market opportunities. Any addressable market opportunities identified in this Annual Report should not be construed as financial guidance and should not otherwise be relied upon as being necessarily indicative of future results, and you are cautioned not to place undue reliance on our estimated addressable opportunities. In preparing our estimated addressable opportunities, we have relied upon and assumed, without independent verification, the accuracy and completeness of certain industry and market information provided to us by third parties or through publicly available sources, which information involves assumptions and limitations, and you should not give undue weight to such information. We are currently limited to RUO with respect to many of the materials and components used in our consumable products including our assays. Our instruments, consumable products and assays are purchased from suppliers with a restriction that they be used for RUO.

While we have focused initially on the life sciences research market and RUO products only, part of our business strategy is to expand our product line to encompass products that are intended to be used for the diagnosis of disease and precision healthcare, either alone or in collaboration with third parties. The use of our RUO products for any such diagnostic purposes would require that we obtain regulatory clearance or approval to market our products for those purposes and also that we acquire the materials and components used in such products from suppliers without an RUO restriction. There can be no assurance that we will be able to acquire these materials and components for use in diagnostic products on acceptable terms, if at all. If we are unable to do so, we would not be able to expand our non- Bionano Laboratories product offerings beyond RUO, and our business and prospects would suffer. The FDA Guidance on “ Distribution of In Vitro Diagnostic Products Labeled for Research Use Only or Investigational Use Only ”, emphasizes that the FDA will review the totality of the circumstances when evaluating whether equipment and testing components are properly labeled as RUO. It further states that merely including a labeling statement that a product is intended for RUO will not necessarily render the device exempt from the FDA’s 510 (k) clearance, premarket approval application (“ PMA ”), or other requirements, if the circumstances surrounding the distribution of the product indicate that the manufacturer intends for its product to be offered for clinical diagnostic use. These circumstances may include written or verbal marketing claims or links to articles regarding a product’s performance in clinical applications, a manufacturer’s provision of technical support for clinical validation or clinical applications, or solicitation of business from clinical laboratories, all of which could be considered evidence of intended uses that conflict with RUO labeling. If the FDA were to determine that our RUO products were intended for use in clinical investigation, diagnosis or treatment decisions, or that express or implied clinical or diagnostic claims were made for our RUO products, those products could be considered misbranded or adulterated under the Federal Food, Drug, and Cosmetic Act. If the FDA determines that our RUO products are being marketed for clinical diagnostic use without the required PMA or 510 (k) clearance, we may be required to cease marketing our products as planned, recall the products from customers, revise our marketing plans, and / or suspend or delay the commercialization of our products until we obtain the required authorization. We also may be subject to a range of enforcement actions by the FDA, including warning or untitled letters, injunctions, civil monetary penalties, criminal prosecution, and recall and / or seizure of products, as well as significant adverse publicity. If, in the future, we choose to commercialize our RUO products for clinical diagnostic use, we will be required to comply with the FDA’s premarket review and post- market control requirements for in- vitro diagnostics (“ IVD ”), products, as may be applicable. Complying with the FDA’s PMA and / or 510 (k) clearance requirements may be expensive, time- consuming, and subject us to significant and / or unanticipated delays. Our efforts may never result in an approved PMA or 510 (k) clearance for our products. Even if we obtain a PMA or 510 (k) clearance, where required, such authorization may not be for the use or uses we believe are commercially attractive and / or are critical to the commercial success of our products. As a result, being subject to the FDA’s premarket review and / or post- market control requirements for our products could materially and adversely affect our business, financial condition and results of operations. We have limited experience in marketing and selling our products and technologies, and if we are unable to successfully commercialize our products and technologies, our business and operating results will be adversely affected. We have limited experience marketing and selling our products and technologies. We currently sell our OGM systems and Ionic [®] Purification system for RUO through our direct field sales and support organizations located in North America and Europe ~~and through a combination of our own sales force~~ and third- party distributors in additional major markets such as Australia, China, Japan and South Korea. The future sales of our products and technologies will depend in large part on our ability to effectively market and sell our products and technologies, successfully **maintain and** manage ~~and expand~~ our sales force, and increase the scope of our marketing efforts. We may also enter into additional distribution arrangements in the future. Because we have limited experience in marketing and selling our products and technologies, our ability to forecast demand, the infrastructure required to support such demand and the sales cycle to customers is unproven. If we do not build an efficient and effective sales force, our business and operating results will be adversely affected. We rely on a single contract manufacturer for our OGM systems and a **single limited number of** contract ~~manufacturer~~ **manufacturers** for our chip consumables. If ~~either any~~ of these manufacturers should fail or not perform satisfactorily, our ability to supply these products would be negatively and adversely affected. We currently rely on a single contract manufacturer to manufacture and supply all of our OGM- based instruments ~~and, including~~ our Ionic [®] Purification instruments. ~~See the section titled “ Business — Key Agreements ” in this Annual Report.~~ In addition, we rely on a **single limited number of** contract ~~manufacturer~~ **manufacturers** based in the United States to manufacture and supply all of our chip consumables. Since our contracts with these manufacturers do not commit them to supply quantities beyond the amounts included in our purchase orders, and do not commit them to carry inventory or make available any particular quantities, these contract manufacturers may give other customers’ needs higher priority than ours, and we may not be able to obtain adequate supplies in a timely manner or on commercially reasonable terms. If ~~either any~~ of these manufacturers were to be unable to supply **our OGM- based instruments, Ionic [®] Purification** instruments or chip consumables, our business would be harmed. In the event it becomes necessary to utilize different contract manufacturers for our OGM- based **instruments, Ionic [®] Purification** instruments or chip consumables, we would experience additional costs, delays and difficulties in doing so as a result of identifying and entering into an agreement with a new supplier as well as preparing such new supplier to meet the logistical requirements associated with manufacturing our units, and our business would suffer. We may also experience additional costs and delays in the event we need access to or rights under any intellectual property of these current manufacturers. We have experienced manufacturing problems or delays that could limit the growth of our revenue or increase our losses. We have encountered situations that resulted in delays or shortfalls caused by our outsourced manufacturing suppliers and by other third- party suppliers who manufacture components for our products. We have been negatively impacted by unfavorable flowcell yields in the production cycle. If the same or a similar issue were to occur, it could lead to lower gross margins in future periods. If we are unable to keep up with demand for our products, our revenue could be impaired, market acceptance for our products and systems could be adversely affected and our customers might instead purchase our competitors’

products and systems. Our inability to successfully manufacture our products would have a material adverse effect on our operating results. If our laboratory facilities become damaged or inoperable or we are required to vacate our existing facilities, our ability to conduct our laboratory analysis and pursue our research and development efforts may be jeopardized. We currently perform all research and development activities and OGM services at a single laboratory facility in San Diego, California. All of our molecular diagnostics services are reported through a single facility in **San Diego Salt Lake City, Utah California**. Our facilities and equipment could be harmed or rendered inoperable by natural or man-made disasters, including war, fire, earthquake, power loss, communications failure, terrorism, burglary, public health crises (including restrictions that may result from various geopolitical and macroeconomic developments, such as the ongoing conflict between Ukraine and Russia) or other events, which may make it difficult or impossible for us to perform our testing services for some period of time or to receive and store samples. The inability to perform tests or to reduce the backlog of sample analysis that could develop if one or both of our facilities become inoperable, for even a short period of time, may result in the loss of revenue, loss of customers or harm to our reputation, and we may be unable to regain that revenue, those customers or repair our reputation in the future. Furthermore, integral parties in our supply chain are operating from single sites, increasing their vulnerability to natural disasters and man-made disasters or other sudden, unforeseen and severe adverse events. In addition, the loss of our samples due to such events could limit or prevent our ability to conduct research and development analysis on existing tests as well as tests in development. Our facilities and the equipment we use to perform our testing and research and development could be unavailable or costly and time-consuming to repair or replace. It would be difficult, time-consuming and expensive to rebuild our facilities, to locate and qualify a new facility with applicable regulatory authorities, replace certain pieces of equipment or license or transfer our proprietary technology to a third party, particularly in light of licensure and accreditation requirements. Even in the unlikely event that we are able to find a third party with such qualifications to enable us to resume our operations, we may be unable to negotiate commercially reasonable terms. We carry insurance for damage to our property and the disruption of our business, but this insurance may not cover all of the risks associated with damage or disruption to our business, may not provide coverage in amounts sufficient to cover our potential losses and may not continue to be available to us on acceptable terms, if at all. We rely on a limited number of suppliers or, in some cases, one supplier, for some of our materials and components used in our products, and may not be able to find replacements or immediately transition to alternative suppliers, which could have a material adverse effect on our business, financial condition, results of operations and reputation. We rely on limited or sole suppliers for certain reagents and other materials and components that are used in our products. While we periodically forecast our needs for such materials and enter into standard purchase orders with our suppliers, we do not have long-term contracts with many of these suppliers. If we were to lose such suppliers, there can be no assurance that we will be able to identify or enter into agreements with alternative suppliers on a timely basis on acceptable terms, if at all. An interruption in our operations, including our laboratory operations, could occur if we encounter delays or difficulties in securing these materials, or if the quality of the materials supplied do not meet our requirements, or if we cannot then obtain an acceptable substitute. The time and effort required to qualify a new supplier and ensure that the new materials provide the same or better quality results could result in significant additional costs. Any such interruption could significantly affect our business, financial condition, results of operations and reputation. In addition, certain of the components used in our instruments are sourced from limited or sole suppliers. If we were to lose such suppliers, there can be no assurance that we will be able to identify or enter into agreements with alternative suppliers on a timely basis on acceptable terms, if at all. An interruption in our ability to sell and deliver instruments to customers could occur if we encounter delays or difficulties in securing these components, or if the quality of the components supplied do not meet specifications, or if we cannot then obtain an acceptable substitute. If any of these events occur, our business and operating results could be harmed. Also, in order to mitigate these risks, we maintain inventories of certain supplies at higher levels than would be the case if multiple sources of supply were available. If our sales or testing volume decreases or we switch suppliers, we may hold excess supplies with expiration dates that occur before use which would adversely affect our losses and cash flow position. As we introduce any new products, we may experience supply issues as we ramp up our sales or test volume. If we should encounter delays or difficulties in securing, reconfiguring or revalidating the equipment, reagents or other materials we require for our products, our business, financial condition, results of operations and reputation could be adversely affected. Undetected errors or defects in our products or technologies could harm our reputation, decrease market acceptance of our products or technologies or expose us to product liability claims or recalls. Our products or technologies may contain undetected errors or defects when first introduced or as new versions or new products or technologies are released. Disruptions affecting the introduction or release of, or other performance problems with, our products or technologies may damage our customers' businesses and could harm their and our reputations. If that occurs, we may incur significant costs, the attention of our key personnel could be diverted, or other significant customer relations problems may arise. We may also be subject to warranty and liability claims for damages related to errors or defects in our products or technologies. In addition, if we do not meet industry or quality standards, if applicable, our products may be subject to recall. A material liability claim, recall or other occurrence that harms our reputation or decreases market acceptance of our products or technologies could harm our business and operating results. If our customers develop or use our products or assays for diagnostic purposes, someone could file a product liability claim alleging that one of our products contained a design or manufacturing defect that resulted in the failure to adequately perform, leading to death or injury. In addition, the marketing, sale and use of our current or future products and assays could lead to the filing of product liability claims against us if someone alleges that our products failed to perform as designed. We may also be subject to liability for errors in the results we provide or for a misunderstanding of, or inappropriate reliance upon, the information we provide. A product liability claim could result in substantial damages and be costly and time consuming to defend, either of which could materially harm our business or financial condition. We cannot assure investors that our product liability insurance would adequately protect our assets from the financial impact of defending a product liability claim. Any product liability claim brought against us, with or without merit, could

increase our product liability insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current partners to terminate existing agreements and potential partners to seek other partners, any of which could impact our results of operations. We may also initiate a correction to our existing products or assays, which could lead to increased costs and increased scrutiny by regulatory authorities and our customers regarding the quality and safety of our products or services, as well as negative publicity. The occurrence of any of these events could have an adverse effect on our business and results of operations. Our reliance on distributors for sales of our products outside of the United States could limit or prevent us from selling our products and could impact our revenue. We **may intend to continue to** grow our business internationally, and to do so we must attract additional distributors and retain existing distributors to maximize the commercial opportunity for our products. There is no guarantee that we will be successful in attracting or retaining desirable sales and distribution partners or that we will be able to enter into such arrangements on favorable terms. Distributors may not commit the necessary resources to market and sell our products to the level of our expectations or may choose to favor marketing the products of our competitors. If current or future distributors do not perform adequately, or we are unable to enter into effective arrangements with distributors in particular geographic areas, we may not realize long- term international revenue growth. In addition, if our distributors fail to comply with applicable laws and ethical standards, including anti- bribery laws, this could damage our reputation and could have a significant adverse effect on our business and our revenues. We expect to generate a substantial portion of our revenue internationally in the future and can become further subject to various risks relating to our international activities, which could adversely affect our business, operating results and financial condition. During the **years twelve months** ended December 31, **2024 and 2023 and 2022**, approximately **64 % and 56 % and 58 %**, respectively, of our revenue was generated from customers located outside of the United States. We believe that a substantial percentage of our future revenue will **continue to** come from international sources as we **expand-maintain** our **existing** overseas operations and **aim to** develop opportunities in additional areas. We have limited experience operating internationally and engaging in international business involves a number of difficulties and risks, including: • required compliance with existing and changing foreign regulatory requirements and laws; • difficulties and costs of staffing and managing foreign operations; • difficulties protecting or procuring intellectual property rights; • required compliance with anti- bribery laws, such as the U. S. FCPA, data privacy and security requirements, labor laws and anti-competition regulations; • export or import restrictions; • laws and business practices favoring local companies; • longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems; • political and economic instability; and • potentially adverse tax consequences, tariffs, customs charges, bureaucratic requirements and other trade barriers. Historically, most of our revenue has been denominated in U. S. dollars. For sales made to customers outside of the United States, we sell our products and services in local currency. **As-If** our international operations grow, our results of operations and cash flows will be subject to increasing fluctuations due to changes in foreign currency exchange rates, which could harm our business. For example, if the value of the U. S. dollar increases relative to foreign currencies, in the absence of a corresponding change in local currency prices, our revenue could be adversely affected as we convert revenue from local currencies to U. S. dollars. If we dedicate significant resources to our international operations and are unable to manage these risks effectively, our business, operating results and financial condition will suffer. If we are unable to recruit, train, retain, motivate and integrate key personnel, we may not achieve our goals. Our future success depends on our ability to recruit, train, retain, motivate and integrate key personnel, including our **recently expanded** senior management team, as well as our research and development, manufacturing and sales and marketing personnel. Competition for qualified personnel is intense. Our growth depends, in particular, on attracting and retaining highly- trained sales personnel with the necessary scientific background and ability to understand our systems at a technical level to effectively identify and sell to potential new customers. Additionally, our growth depends on attracting and retaining highly- skilled personnel with the necessary technical and scientific background needed to develop new products and technologies. Because of the complex and technical nature of our products and technologies and the dynamic market in which we compete, any failure to attract, train, retain, motivate and integrate qualified personnel could materially harm our operating results and growth prospects. In response to competition, rising inflation rates and labor shortages, we may need to adjust employee cash compensation, which would affect our operating costs and our margins, or equity compensation, which would affect our outstanding share count, causing dilution to existing shareholders and possibly souring investor sentiment, which could in turn make it difficult to achieve our goals. If we cannot provide quality technical and applications support, we could lose customers and our business and prospects will suffer. The placement of our products at new customer sites, the introduction of our technology into our customers' existing laboratory workflows and ongoing customer support can be complex. Accordingly, we need highly trained technical support personnel. Hiring technical support personnel is very competitive in our industry due to the limited number of people available with the necessary scientific and technical backgrounds and ability to understand our technology at a technical level. To effectively support potential new customers and the expanding needs of current customers, we will need to substantially expand our technical support staff. If we are unable to attract, train or retain the number of highly qualified technical services personnel that our business needs, our business and prospects will suffer. If our information technology systems or data or those of third parties **upon which with whom** we **rely-work**, are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse consequences. We are increasingly dependent upon information technology systems, infrastructure and data to operate our business. In the ordinary course of our business, we and the third parties **upon which with whom** we **rely-work** collect, store, use, protect, secure, generate, transfer, dispose of, transmit, disclose, and otherwise process sensitive, proprietary, and confidential information, including intellectual property, trade secrets, financial information, and personal data (including protected health information) (collectively, " Sensitive Data "). As a result, we and the third parties **upon which with whom** we

rely **work** face a variety of evolving threats including but not limited to ransomware attacks, which could cause security incidents. Cyberattacks, malicious internet- based activity, online and offline fraud, and other similar activities threaten the confidentiality, integrity, and availability of our Sensitive Data and information technology systems, and those of the third parties **upon which with whom** we **rely work**. Such threats are prevalent and continue to rise, are becoming increasingly difficult to detect, and come from a variety of sources, including traditional computer “ hackers, ” threat actors, personnel (such as through theft or misuse), “ hacktivists, ” sophisticated nation- states, and nation- state- supported actors. Some actors now engage and are expected to continue to engage in cyber- attacks, including without limitation nation- state actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, including as a result of the ongoing military conflict between Russia and Ukraine and the related sanctions imposed against Russia, and **the military conflict conflicts between Israel and Gaza in the Middle East**, we and the third parties **upon which with whom** we **rely work** may be vulnerable to a heightened risk of these attacks, including retaliatory cyber- attacks that could materially disrupt our systems and operations, supply chain, and ability to produce, sell and distribute our goods and services. We and the third parties **upon which with whom** we **rely work** are subject to a variety of evolving threats, including but not limited to social- engineering attacks (such as through deep fakes, which may be increasingly more difficult to identify as fake, and phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial- of- service attacks (credential stuffing), credential harvesting, personnel misconduct or error, ransomware attacks, supply- chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, attacks enhanced or facilitated by AI, earthquakes, fires, floods, and other similar threats. In particular, severe ransomware attacks, including those perpetrated by organized criminal threat actors, nation- states, and nation- state supported actors, are becoming increasingly prevalent and can lead to significant interruptions in our operations, ability to provide our products and services, loss of Sensitive Data and income, reputational harm, and diversion of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments due to, for example, applicable laws or regulations prohibiting such payments. **It may be difficult and / or costly to detect, investigate, mitigate, contain, and remediate a security incident. Our efforts to do so may not be successful. Actions taken by us or the third parties with whom we work to detect, investigate, mitigate, contain, and remediate a security incident could result in outages, data losses, and disruptions of our business. Threat actors may also gain access to other networks and systems after a compromise of our networks and systems.** In addition, our reliance on third **parties** ~~party service providers and technologies~~ to operate critical business systems to process Sensitive Data could introduce new cybersecurity risks and vulnerabilities and other threats to our business operations. We rely on third **parties** ~~party service providers~~ in a variety of contexts, including, without limitation, third- party providers of cloud- based infrastructure, encryption and authentication technology, employee email, content delivery to customers, and other functions and, as a result, we and the third parties **upon which with whom** we **rely work** face a variety of evolving threats, including but not limited to ransomware attacks, which could cause security incidents. Our ability to monitor these third parties’ cybersecurity practices is limited, and these third parties may not have adequate information security measures in place. While we may be entitled to damages if ~~our the third~~ ~~party service providers~~ **parties with whom we work** fail to satisfy their privacy or security- related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such award. We share or receive Sensitive Data with or from third parties. Similarly, supply chain attacks have increased in frequency and severity, and we cannot guarantee that third parties and infrastructure in our supply chain or our third- party partners’ supply chains have not been compromised or that they do not contain exploitable defects or bugs that could result in a breach of or disruption to our information technology systems (including our software) or the third- party information technology systems that support us and our services. Remote work has become more common and has increased risks to our information technology systems and data, as more of our employees utilize network connections, computers and devices outside our premises or network, including working at home, while in transit, and in public locations. Additionally, past or future business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems and Sensitive Data could be negatively affected by vulnerabilities present in acquired or integrated entities’ systems and technologies. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program. While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We take steps designed to detect, mitigate, and remediate vulnerabilities in our information systems (such as our hardware and / or software, including that of third parties **upon which with whom** we **rely work**). We may not, however, detect and remediate all such vulnerabilities including on a timely basis. Further, we may experience delays in deploying remedial measures and patches designed to address identified vulnerabilities. Vulnerabilities could be exploited and result in a security incident. Any of the previously identified or similar threats could cause a security incident or other interruption. that could result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to our Sensitive Data or our information technology systems, or those of the third parties **upon with** whom we **rely work**. A security incident or other interruption could disrupt our ability (and that of third parties **upon with** whom we **rely work**) to provide our products, software and services. We may expend significant resources or modify our business activities (including our clinical trial activities) in an effort to protect against security incidents. Certain data privacy and security obligations may require us to implement and maintain specific security measures, or industry- standard or reasonable security measures to protect our information technology systems and Sensitive Data. Applicable data privacy and security obligations may require us **, or we may voluntarily choose,** to notify relevant stakeholders, including affected individuals, customers, regulators, and investors, of security incidents **, or to take other actions, such as providing credit monitoring and identity theft protection services**. Such disclosures **are and related actions can be** costly, and the

disclosures or the failure to comply with such applicable requirements could lead to adverse consequences. If we (or a third party upon which whom we rely work) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences, such as government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and / or oversight; restrictions on processing data (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; divergent of management attention; interruptions in our operations (including availability of data); financial loss; and other similar harms. Security incidents and attendant consequences may cause customers to stop using our software or services, deter new customers from using our software or services, and negatively impact our ability to grow and operate our business. Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage, if any, will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims. In addition to experiencing a security incident, third parties may gather, collect, or infer Sensitive Data about us from public sources, data brokers, or other means that reveals competitively sensitive details about our organization and could be used to undermine our competitive advantage or market position. We are subject to stringent and evolving U. S. and foreign laws, regulations, and rules, contractual obligations, industry standards, policies and other obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation (including class claims) and mass arbitration demands; fines and penalties; disruption of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse business consequences. In the ordinary course of business, we collect, store, protect, secure, generate, transfer, dispose of, use, transmit, disclose and otherwise process personal data (including protected health information) and other sensitive information, including proprietary and confidential business data, trade secrets, and intellectual property. Our data processing activities subject us to numerous data privacy and security obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contractual requirements, and other obligations that govern the processing of personal data by us and on our behalf. In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, consumer protection laws (e. g., Section 5 of the Federal Trade Commission Act), and other similar laws (e. g., wiretapping laws). For example, HIPAA, as amended by HITECH, and their respective implementing regulations, impose specific requirements relating to the privacy, security, and transmission of individually identifiable health information. For more information regarding risks associated with HIPAA, please refer to the section above that discusses risks associated with federal and state healthcare laws. In the past few years, numerous U. S. states – including California, Virginia, Colorado, Connecticut, and Utah — have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording residents with certain rights concerning their personal data. As applicable, such rights may include the right to access, correct, or delete certain personal data, and to opt- out of certain data processing activities, such as targeted advertising, profiling, and automated decision- making. The exercise of these rights may impact our business and ability to provide our products and services. Certain states also impose stricter requirements for processing certain personal data, including sensitive information, such as conducting data privacy impact assessments. These state laws allow for statutory fines for noncompliance. For example, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020 (collectively, the “ CCPA ”) applies to personal information of consumers, business representatives, and employees who are California residents and requires businesses to provide specific disclosures in privacy notices and honor requests of California residents to exercise certain privacy rights. The CCPA allows for fines for noncompliance (up to \$ 7, 500 per intentional violation and allows private litigants affected by certain data breaches to recover significant statutory damages). While these laws exempt some data processed in the context of clinical trials, these developments further complicate compliance efforts and increase legal risk and compliance costs for us and the third parties upon which whom we rely work. Similar laws are being considered in several other states, as well as at the federal and local levels, and we expect more states to pass similar laws in the future. Outside the United States, an increasing number of laws, regulations, and industry standards apply to data privacy and security. For example, the EU GDPR and the UK GDPR impose strict requirements for processing the personal data of individuals. For example, under the GDPR, companies may face temporary or definitive bans on data processing and other corrective actions; fines of up to 20 million euros under the EU GDPR, 17. 5 million pounds sterling under the UK GDPR, or, in each case 4 % of annual global revenue, whichever is greater; or private litigation related to the processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests. We may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross- border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area (“ EEA ”) and the UK have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it generally believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross- border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA’ s standard contractual clauses the UK’ s International Data Transfer Agreement / Addendum, and the EU- U. S. Data Privacy Framework (which allows for transfers to relevant U. S.- based organizations who self- certify compliance and participate in the Framework), these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States, or if the

requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigants, and activities groups. Some European regulators have ordered certain companies to suspend or permanently cease certain transfers of personal data out of Europe for allegedly violating the GDPR's cross-border data transfer limitations. In addition, privacy advocates and industry groups have proposed, and may propose in the future, standards with which we may be legally or contractually bound to comply. For example, we may also be subject to the Payment Card Industry Data Security Standard ("PCI DSS"). The PCI DSS requires companies to adopt certain measures to ensure the security of cardholder information, including using and maintaining firewalls, adopting proper password protections for certain devices and software, and restricting data access. Noncompliance with PCI-DSS can result in penalties ranging from \$ 5,000 to \$ 100,000 per month by credit card companies, litigation, damage to our reputation, and revenue losses. We may also rely on vendors to process payment card data, and those vendors may be subject to PCI DSS, and our business may be negatively affected if our vendors are fined or suffer other consequences as a result of PCI DSS noncompliance. We are also subject to contractual obligations related to data privacy and security and our efforts to comply with such obligations may not be successful. We publish privacy policies, marketing materials, and other statements regarding data privacy and security. We may be subject to investigation or enforcement actions by regulators if those policies or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices. Our data privacy and security obligations are quickly changing in an increasingly stringent fashion, creating some uncertainty as to the effective future legal framework. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or in conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources (including, without limitation, financial and time-related resources) and may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties on which with whom we rely work. If we or the third parties on which with whom we rely work fail, or are perceived to have failed, to address or comply with data privacy and security obligations, we could face significant consequences. These consequences may include, but are not limited to, government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class action claims) and mass arbitration demands; additional reporting requirements and / or oversight; bans or restrictions on processing personal data; orders to destroy or not use personal data; and imprisonment of company officials. In particular, plaintiffs have become increasingly more active in bringing privacy-related claims against companies, including class claims and mass arbitration demands. Some of these claims allow for the recovery of statutory damages on a per violation basis, and, if viable, carry the potential for monumental statutory damages, depending on the volume of data and the number of violations. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to, loss of customers; interruptions or stoppages in our business operations; inability to process personal data or to operate in certain jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or substantial changes to our business model or operations. The life sciences research and diagnostic markets are highly competitive. If we fail to effectively compete, our business, financial condition and operating results will suffer. We face significant competition in the life sciences research and diagnostic markets. We currently compete with both established and early-stage companies that design, manufacture and market systems and consumable supplies. We believe our principal competitors in the life sciences research and genome mapping markets include Nabsys, PacBio, Oxford Nanopore Technologies, Genomic Vision, Qiagen, and Dovetail Genomics (now part of Cantata Bio), and Arima. In addition, the existing incumbent technologies such as karyotyping and FISH are well established and, in many cases, need to be displaced for Bionano products to be adopted. Further, there are a number of new market entrants in the process of developing novel technologies for the life sciences research, diagnostic and screening markets. Many of our current competitors are either publicly-traded, or are divisions of publicly-traded companies, and may enjoy a number of competitive advantages over us, including: • greater name and brand recognition; • substantially greater financial and human resources; • broader product lines; • larger sales forces and more established distributor networks; • substantial intellectual property portfolios; • larger and more established customer bases and relationships; and • better established, larger scale, and lower cost manufacturing capabilities. We believe that the principal competitive factors in all of our target markets include: • cost of instruments and consumables; • accuracy, including sensitivity and specificity, and reproducibility of results; • reputation among customers and key opinion leaders; • innovation in product offerings; • flexibility, scalability and ease of use; and • compatibility with existing laboratory processes, tools and methods. We cannot assure investors that our products or technologies will compete favorably or that we will be successful in the face of increasing competition from new products and technologies introduced by our existing competitors or new companies entering our markets. In addition, we cannot assure investors that our competitors do not have or will not develop products or technologies that currently or in the future will enable them to produce competitive products or technologies with greater capabilities or at lower costs than ours. Any failure to compete effectively could materially and adversely affect our business, financial condition and operating results. If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business. We, and any the third parties with access to our facilities, are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Each of our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our operations also produce hazardous waste. We generally

contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. We could be held liable for any resulting damages in the event of contamination or injury resulting from the use of hazardous materials by us or the third parties with whom we contract, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials. We do not have any insurance for liabilities arising from medical or hazardous materials. In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. Compliance with applicable environmental laws and regulations is expensive, and these current or future laws and regulations may impair our research, development and commercialization efforts, which could harm our business, prospects, financial condition or results of operations. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions. Risks related to government regulation and diagnostic product reimbursement

If the FDA ends enforcement discretion for Laboratory Developed Tests or determines that our RUO products are medical devices or if we seek to market our RUO products for clinical diagnostic or health screening use, we or our collaborators or customers will be required to obtain regulatory clearance (s) or approval (s), and we may be required to cease or limit sales of our then marketed products, which could materially and adversely affect our business, financial condition and results of operations. Any such regulatory process would be expensive, time-consuming and uncertain both in timing and in outcome. Our RUO products are focused on the life sciences research market. This includes laboratories associated with academic and governmental research institutions, as well as pharmaceutical, biotechnology and contract research companies. Accordingly, our products are labeled as RUO, and are not intended for diagnostic use. While we have focused initially on the life sciences research market and RUO products only, our strategy is to expand our product line to encompass products that are intended to be used for the diagnosis of disease, either alone or in collaboration with third parties. Such IVD products will be subject to regulation by the FDA as medical devices, or comparable international agencies, including requirements for regulatory clearance or approval of such products before they can be marketed. If the FDA were to determine that our products are intended for clinical use or if we decided to market our products for such use, we would be required to obtain FDA 510 (k) clearance or premarket approval in order to sell our products in a manner consistent with FDA laws and regulations. Such regulatory approval processes or clearances are expensive, time-consuming and uncertain; our efforts may never result in any approved premarket approval application, or PMA, or 510 (k) clearance for our products; and failure by us or a collaborator to obtain or comply with such approvals and clearances could have an adverse effect on our business, financial condition or operating results. IVD products may be regulated as medical devices by the FDA and comparable international agencies and may require either clearance from the FDA following the 510 (k) pre-market notification process or PMA from the FDA, in each case prior to marketing. If we or our collaborators are required to obtain a PMA or 510 (k) clearance for products based on our technology, we or they would be subject to a substantial number of additional requirements for medical devices, including establishment registration, device listing, Quality Systems Regulations which cover the design, testing, production, control, quality assurance, labeling, packaging, servicing, sterilization (if required), and storage and shipping of medical devices (among other activities), product labeling, advertising, recordkeeping, post-market surveillance, post-approval studies, adverse event reporting, and correction and removal (recall) regulations. One or more of the products we or a collaborator may develop using our technology may also require clinical trials in order to generate the data required for PMA approval. Complying with these requirements may be time-consuming and expensive. We or our collaborators may be required to expend significant resources to ensure ongoing compliance with the FDA regulations and / or take satisfactory corrective action in response to enforcement action, which may have a material adverse effect on the ability to design, develop, and commercialize products using our technology as planned. Failure to comply with these requirements may subject us or a collaborator to a range of enforcement actions, such as warning letters, injunctions, civil monetary penalties, criminal prosecution, recall and / or seizure of products, and revocation of marketing authorization, as well as significant adverse publicity. If we or our collaborators fail to obtain, or experience significant delays in obtaining, regulatory approvals for IVD products, such products may not be able to be launched or successfully commercialized in a timely manner, or at all. Laboratory developed tests, or LDTs, are a subset of IVD tests that are designed, manufactured and used within a single laboratory. Our Bionano Laboratories diagnostic services are provided as LDTs. The FDA maintains that LDTs are medical devices and has for the most part exercised enforcement discretion for most LDTs. A significant change in the way that the FDA regulates any LDTs that we, our collaborators or our customers market or develop using our technology could materially adversely affect our business. On ~~October 3, 2023~~ **May 6, 2023-2024** FDA issued ~~proposed final~~ regulations under which it ~~would intend to~~ phase out its enforcement discretion approach to LDTs over a period of four years. ~~We~~ **Although the proposed regulation is subject to a period of notice and comment, if finalized as proposed, we** and our collaborators or customers ~~would will~~ be required to obtain PMA approval or 510 (k) clearance for certain tests by October 1, 2027. We ~~would will~~ also ~~be become~~ subject to device registration and listing requirements, medical device reporting requirements and the requirements of the FDA's Quality System Regulation. We may be required to conduct clinical trials ~~prior to~~ **support any PMA approval** ~~continuing to sell our existing LDTs~~. This may increase the cost of conducting, or otherwise harm, our business. ~~The~~ **If the FDA requires laboratories to undergo premarket review and comply with other applicable FDA requirements in the future, the** cost and time required to commercialize ~~an~~ **tests presently marked as LDT** ~~LDTs~~ will increase substantially, and may reduce the financial incentive for us to continue to offer our Bionano Laboratories genetic diagnostic services or for our customer laboratories to develop LDTs, which could reduce demand for our RUO instruments and our other products. In addition, if the FDA were to change the way that it regulates LDTs to require that we undergo pre-market review or comply with other applicable FDA requirements before we can sell our RUO instruments or our

other products to clinical cytogenetics laboratories, our ability to sell our RUO instruments and other products to this addressable market would be delayed, thereby impeding our ability to penetrate this market and generate revenue from sales of our instruments and our other products. Failure to comply with applicable FDA requirements could subject us to misbranding or adulteration allegations under the Federal Food, Drug, and Cosmetic Act. We could be subject to a range of enforcement actions, including warning letters, injunctions, civil monetary penalties, criminal prosecution, and recall and / or seizure of products, as well as significant adverse publicity. In addition, changes to the current regulatory framework, including the imposition of additional or new regulations, could arise at any time during the development or marketing of our products, which may negatively affect our ability to obtain or maintain FDA or comparable regulatory approval of our products, if required. Foreign jurisdictions have laws and regulations similar to those described above, which may adversely affect our ability to market our products as planned in such countries. The number and scope of these requirements are increasing. As in the United States, the cost and time required to comply with regulatory requirements may be substantial, and there is no guarantee that we will obtain the necessary authorization (s) required to make our products commercially viable. As a result, the imposition of foreign requirements may also have a material adverse effect on the commercial viability of our operations. We expect to rely on third parties in conducting any required future studies of diagnostic products that may be required by the FDA or other regulatory authorities, and those third parties may not perform satisfactorily. We do not have the ability to independently conduct clinical trials or other studies that may be required to obtain FDA and other regulatory clearance or approval for future diagnostic products. Accordingly, we expect that we would rely on third parties, such as clinical investigators, consultants, and collaborators to conduct such studies if needed. Our reliance on these third parties for clinical and other development activities would reduce our control over these activities. If these third parties do not successfully carry out their contractual duties or regulatory obligations or meet expected deadlines, if the third parties need to be replaced or if the quality or accuracy of the data they obtain is compromised, we may not be able to obtain regulatory clearance or approval. Billing for our Bionano Laboratories diagnostic testing procedures is complex and requires substantial time and resources to collect payment. Billing for clinical laboratory testing services in connection with our Bionano Laboratories diagnostic services is complex, time- consuming and expensive. Depending on the billing arrangement and applicable law, we bill various payors, including Medicare, Medicaid, private insurance companies, private healthcare institutions, and patients, all of which have different billing requirements. We generally bill third- party payors for our diagnostic testing services and pursue reimbursement on a case- by- case basis where pricing contracts are not in place. To the extent laws or contracts require us to bill patient co- payments or co- insurance, we must also comply with these requirements. We may also face increased risk in our collection efforts, including potential write- offs of accounts receivable and long collection cycles, which could adversely affect our business, results of operations and financial condition. Several factors make the billing process complex, including: • differences between the billing rates and reimbursement rates for our products; • compliance with complex federal and state regulations related to billing government healthcare programs, including Medicare, Medicaid and TRICARE; • risk of government audits related to billing; • disputes among payors as to which party is responsible for payment; • differences in coverage and information and billing requirements among payors, including the need for prior authorization and / or advanced notification; • the effect of patient co- payments or co- insurance and our ability to collect such payments from patients; • changes to billing codes used for our products; • changes to requirements related to our current or future clinical studies, including our registry studies, which can affect eligibility for payment; • ongoing monitoring provisions of LCDs for our products, which can affect the circumstances under which a claim would be considered medically necessary; • incorrect or missing billing information; and • the resources required to manage the billing and claims appeals process. We use standard industry billing codes, known as CPT codes, to bill for our diagnostic testing services. If these codes were to change, there is a risk of an error being made in the claim adjudication process. Such errors can occur with claims submission, third- party transmission or in the processing of the claim by the payor. Claim adjudication errors may result in a delay in payment processing or a reduction in the amount of the payment we receive. As we introduce new products, we may need to add new codes to our billing process as well as our financial reporting systems. Failure or delays in effecting these changes in external billing and internal systems and processes could negatively affect our collection rates, revenue and cost of collecting. Additionally, our billing activities require us to implement compliance procedures and oversight, train and monitor our employees, and undertake internal audits to evaluate compliance with applicable laws and regulations as well as internal compliance policies and procedures. When payors deny our claims, we may challenge the reason, low payment amount or payment denials. Payors also conduct external audits to evaluate payments, which add further complexity to the billing process. If the payor makes an overpayment determination, there is a risk that we may be required to return all or some portion of prior payments we have received. Additionally, the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, collectively the ACA, requires providers and suppliers to report and return any overpayments received from government payors under the Medicare and Medicaid programs within 60 days of identification. Failure to identify and return such overpayments exposes the provider or supplier to liability under federal false claims laws. These billing complexities, and the related uncertainty in obtaining payment for our products, could negatively affect our revenue and cash flow, our ability to achieve sustained profitability, and the consistency and comparability of our results of operations. If our Bionano Laboratories diagnostic testing procedures are subject to unfavorable pricing regulations or third- party payor coverage and reimbursement policies, our business could be harmed. Our Bionano Laboratories- related revenue depends on achieving and maintaining broad coverage and adequate reimbursement for our Bionano Laboratories products and diagnostic assays from third- party payors, including both government and commercial third- party payors. If third- party payors do not provide coverage of, or do not provide adequate reimbursement for, a substantial portion of the list price of our Bionano Laboratories products and diagnostic assays, we may need to seek additional payment from the patient beyond any co- payments and deductibles, which may adversely affect demand for our Bionano Laboratories products and diagnostic assays. Coverage determinations by a third- party payor may depend on a number of

factors, including, but not limited to, a third- party payor's determination of whether our products or services are appropriate, medically necessary or cost- effective. If we are unable to provide third- party payors with sufficient evidence of the clinical utility and validity of our Bionano Laboratories products and diagnostic assays, they may not provide coverage, or may provide limited coverage, which will adversely affect our revenues and our ability to succeed. Since each third- party payor makes its own decision as to whether to establish a policy to cover our Bionano Laboratories products and diagnostic assays, enter into a contract with us and set the amount it will reimburse for a product, these negotiations are a time- consuming and costly process, and they do not guarantee that the third- party payor will provide coverage or adequate reimbursement for our Bionano Laboratories products and diagnostic assays. In addition, the determinations by a third- party payor whether to cover our Bionano Laboratories products and diagnostic assays and the amount it will reimburse for them are often made on an indication- by- indication basis. In cases where there is no coverage policy or we do not have a contracted rate for reimbursement as a participating provider, the patient is typically responsible for a greater share of the cost of the product, which may result in further delay of our revenue, increase our collection costs or decrease the likelihood of collection. Our claims for reimbursement from third- party payors may be denied upon submission, and we may need to take additional steps to receive payment, such as appealing the denials. Such appeals and other processes are time- consuming and expensive, and may not result in payment. Third- party payors may perform audits of historically paid claims and attempt to recoup funds years after the funds were initially distributed if the third- party payors believe the funds were paid in error or determine that our Bionano Laboratories products and diagnostic assays were medically unnecessary. If a third- party payor audits our claims and issues a negative audit finding, and we are not able to overturn the audit findings through appeal, the recoupment may result in a material adverse effect on our revenue. Additionally, in some cases commercial third- party payors for whom we are not a participating provider may elect at any time to review claims previously paid and determine the amount they paid was too much. In these situations, the third- party payor will typically notify us of their decision and then offset whatever amount they determine they overpaid against amounts they owe us on current claims. We cannot predict when, or how often, a third- party payor might engage in these reviews and we may not be able to dispute these retroactive adjustments. Additionally, coverage policies and third- party payor reimbursement rates may change at any time. Therefore, even if favorable coverage and reimbursement status is attained, less favorable coverage policies and reimbursement rates may be implemented in the future that may adversely affect the coverage and reimbursement of our Bionano Laboratories products and diagnostic assays. If diagnostic procedures that are enabled by our OGM technology are subject to unfavorable pricing regulations or third- party payor coverage and reimbursement policies, our business could be harmed. Currently, our OGM systems are for RUO, but clinical laboratories may acquire our instrumentation through a capital purchase or capital lease and use the OGM system and direct label stain chemistry to create their own potentially reimbursable products, such as laboratory developed tests for in vitro diagnostics. Our customers may generate revenue for these testing services by seeking the necessary approval of their product from the FDA or the Centers for Medicare & Medicaid Services, or CMS, along with coverage and reimbursement from third- party payors, including government health programs and private health plans. The ability of our customers to commercialize diagnostic tests based on our technology will depend in part on the extent to which coverage and reimbursement for these tests will be available from such third- party payors. In the United States, molecular testing laboratories have multiple options for reimbursement coding, but we expect that the primary codes used will be the genomic sequencing procedure codes, or GSPs. The AMA added GSPs to its clinical laboratory fee schedule in 2015. In addition, CMS issued a coverage determination providing for the reimbursement of next- generation sequencing for certain cancer diagnostics using an FDA- approved in vitro diagnostic test. Private health plans often follow CMS coverage and reimbursement guidelines to a substantial degree, and it is difficult to predict what CMS will decide with respect to the coverage and reimbursement of any products our customers try to commercialize. In Europe, coverage for molecular diagnostic testing is varied. Countries with statutory health insurance (e. g., Germany, France, The Netherlands) tend to be more progressive in technology adoption with favorable reimbursement for molecular diagnostic testing. In countries such as the **UK United Kingdom** with tax- based insurance, adoption and reimbursement for molecular diagnostic testing is not uniform and is influenced by local budgets. Ultimately, coverage and reimbursement of new products is uncertain, and whether laboratories that use our instruments to develop their own products will attain coverage and adequate reimbursement is unknown. In the United States, there is no uniform policy for determining coverage and reimbursement. Coverage can differ from payor to payor, and the process for determining whether a payor will provide coverage may be separate from the process for setting the reimbursement rate. In addition, the U. S. government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government- paid healthcare costs, including price controls and restrictions on reimbursement. We cannot be sure that coverage will be available for any diagnostic tests based on our technology, and, if coverage is available, the level of payments. Reimbursement may impact the demand for those tests. If coverage and reimbursement is not available or is available only to limited levels, our customers may not be able to successfully commercialize any tests for which they receive marketing authorization. Healthcare legislative or regulatory reform measures may have a negative impact on our business and results of operations. In March 2010, the ACA became law. The ACA is a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. For example, the ACA contained a 2.3 % excise tax on certain entities that manufacture or import medical devices offered for sale in the United States, with limited exceptions, which has been permanently eliminated as part of the 2020 spending package. There have been executive, judicial and Congressional challenges to certain aspects of the ACA. For example, on June 17, 2021 the U. S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA was unconstitutional in its entirety because the " individual mandate " was repealed by Congress. In addition, other legislative changes have been proposed and adopted since the ACA was enacted. On August 16, 2022, President Biden signed the IRA into law, which among other things, extends

enhanced subsidies for individuals purchasing health insurance coverage in ACA marketplaces through plan year 2025. The IRA also eliminates the coverage gap under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and through a newly established manufacturer discount program. In addition, on April 1, 2014, the Protecting Access to Medicare Act of 2014, or PAMA, was signed into law, which, among other things, significantly altered the payment methodology under the Medicare Clinical Laboratory Fee Schedule, or CLFS. PAMA requires certain laboratories performing clinical diagnostic laboratory tests to report to CMS the amounts paid by private payors for laboratory tests. Such reporting has been subject to numerous delays. Beginning on January 1, 2018, CMS has begun using reported private payor pricing to periodically revise payment rates under the CLFS. Based on current law, between January 1, 2025 and March 31, 2025, applicable laboratories will be required to report on data collected during January 1, 2019 and June 30, 2019. This data will be utilized to determine 2025 to 2027 CLFS rates. We expect that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and additional downward pressure on the price that we or our collaborators will receive for any cleared or approved product. Any reduction in payments from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent our customers from successfully commercializing any tests for which they receive approval, which could prevent us from being able to generate revenue and attain profitability. Complying with numerous regulations pertaining to our business is an expensive and time-consuming process, and any failure to comply could result in substantial penalties. We are subject to the Clinical Laboratory Improvement Amendment of 1988, or CLIA, which is a federal law regulating clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease. Our clinical laboratory is located in **Utah San Diego** and must be certified under CLIA in order for us to perform testing on human specimens. CLIA is intended to ensure the quality and reliability of clinical laboratories in the United States by mandating specific standards in the areas of personnel qualifications, administration, and participation in proficiency testing, patient test management, quality control, quality assurance and inspections. We have a current certificate of compliance under CLIA to perform cytogenetics. To renew this certificate, we are subject to survey and inspection every two years. Moreover, CLIA inspectors may make periodic inspections of our clinical laboratory outside of the renewal process. The failure to comply with CLIA requirements can result in enforcement actions, including the revocation, suspension, or limitation of our CLIA certificate of compliance, as well as a directed plan of correction, state on-site monitoring, civil money penalties, civil injunctive suit and / or criminal penalties. We must maintain CLIA compliance and certification to be eligible to bill for assays provided to Medicare beneficiaries. If we were to be found out of compliance with CLIA program requirements and subjected to sanctions, our business and reputation could be harmed. Even if it were possible for us to bring our laboratory back into compliance, we could incur significant expenses and potentially lose revenue in doing so. We hold laboratory licenses from the states of California, Pennsylvania, and Maryland, to test specimens from patients in those states or received from ordering physicians in those states. Other states may have similar requirements or may adopt similar requirements in the future. Finally, we may be subject to regulation in foreign jurisdictions if we seek to expand international distribution of our assays outside the United States. If we were to lose our CLIA certification or state laboratory licenses, whether as a result of a revocation, suspension or limitation, we would no longer be able to offer our assays, which would limit our revenues and harm our business. If we were to lose, or fail to obtain, a license in any other state where we are required to hold a license, we would not be able to test specimens from those states. Additionally, if we were to lose our CAP accreditation, our reputation for quality, as well as our business, financial condition and results of operations, could be significantly and adversely affected. We are subject to federal and state healthcare fraud and abuse laws and other federal and state laws applicable to our business activities, including our marketing practices. If we are unable to comply, or have not complied, with such laws, we could face substantial penalties. Our operations are subject to various federal and state fraud and abuse laws, including, without limitation, the federal and state anti-kickback statutes and false claims laws. These laws may impact, among other things, our sales and marketing and education programs, and our financial and business relationships with health care professionals. The laws that may affect our ability to operate include, but are not limited to: • the federal Anti-Kickback Statute (the “AKS”), which prohibits, among other things, any person or entity from knowingly and willfully soliciting, receiving, offering or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of an item or service reimbursable, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. The term “remuneration” has been broadly interpreted to include anything of value. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, however these are drawn narrowly. Additionally, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the AKS constitutes a false or fraudulent claim for purposes of the FCA; • the Stark Law, which prohibits a physician from making a referral for certain designated health services covered by the Medicare or Medicaid program, including laboratory and pathology services, if the physician or an immediate family member of the physician has a financial relationship with the entity providing the designated health services and prohibits that entity from billing, presenting or causing to be presented a claim for the designated health services furnished pursuant to the prohibited referral, unless an exception applies; • federal civil and criminal false claims laws and civil monetary penalty laws, such as the FCA, which can be enforced by private citizens through civil qui tam actions, prohibits individuals or entities from, among other things, knowingly presenting, or causing to be presented false, fictitious or fraudulent claims for payment or approval by the federal government, including federal health care programs, such as Medicare and Medicaid, and knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim, or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government; • EKRA prohibits payments for referrals to recovery

homes, clinical treatment facilities, and laboratories. EKRA's reach extends beyond federal health care programs to include private insurance (i. e., it is an "all payor" statute). For purposes of EKRA, the term "laboratory" is defined broadly and without reference to any connection to substance use disorder treatment. The law includes a limited number of exceptions, some of which closely align with corresponding federal Anti-Kickback Statute exceptions and safe harbors, and others that materially differ;

- HIPAA, which, among other things, imposes criminal liability for executing or attempting to execute a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement or representation, in connection with the delivery of or payment for healthcare benefits, items or services. Like the AKS, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by HITECH, and their implementing regulations, which imposes privacy, security and breach reporting obligations with respect to individually identifiable health information upon entities subject to the law, such as health plans, healthcare clearinghouses and certain healthcare providers, known as covered entities, and their respective business associates, individuals or entities that perform services for them that involve individually identifiable health information as well as their covered subcontractors;
- state laws that prohibit other specified practices, such as billing physicians for tests that they order or providing tests at no or discounted cost to induce physician or patient adoption; insurance fraud laws; waiving coinsurance, co-payments, deductibles, and other amounts owed by patients; billing a state Medicaid program at a price that is higher than what is charged to one or more other third-party payors employing, exercising control over or splitting professional fees with licensed professionals in violation of state laws prohibiting fee splitting or the corporate practice of medicine and other professions;
- federal and state consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers;
- the prohibition on reassignment of Medicare claims to any other party;
- state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, that may impose similar or more prohibitive restrictions, and may apply to items or services reimbursed by any non-governmental third-party payors, including private insurers; and
- federal, state, local and foreign laws that govern the data privacy and security of health information in certain circumstances, including state health information privacy and data breach notification laws which govern the collection, use, disclosure, and protection of health-related personal data, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. As a clinical laboratory, our business practices may face additional scrutiny from government regulatory agencies such as the Department of Justice, the U. S. Department of Health and Human Services Office of Inspector General ("OIG"), and CMS. Certain arrangements between clinical laboratories and referring physicians have been identified in fraud alerts issued by the OIG as implicating the AKS. The OIG has stated that it is particularly concerned about these types of arrangements because the choice of laboratory, as well as the decision to order laboratory tests, typically are made or strongly influenced by the physician, with little or no input from patients. Moreover, the provision of payments or other items of value by a clinical laboratory to a referral source could be prohibited under the Stark Law unless the arrangement meets all criteria of an applicable exception. The government has been active in enforcement of these laws as they apply to clinical laboratories. We have entered into consulting and scientific advisory board arrangements, speaking arrangements and clinical research agreements with physicians and other healthcare providers, including some who could influence the use of our products. Although we believe that these have been structured in compliance with applicable laws, because of the complex and far-reaching nature of these laws, regulatory agencies may view these transactions as prohibited arrangements that must be restructured, or discontinued, or for which we could be subject to other significant penalties. We could be adversely affected if regulatory agencies interpret our financial relationships with providers who may influence the ordering of and use of our products to be in violation of applicable laws. Ensuring that our business arrangements with third parties comply with applicable healthcare laws and regulations is costly. If our operations are found to be in violation of any of these laws, we may be subject to significant penalties, including, without limitation, civil, criminal, and administrative penalties, damages, fines, disgorgement, the curtailment or restructuring of our operations, exclusion from participation in federal and state healthcare programs, additional integrity oversight and reporting obligations, imprisonment, contractual damages, and reputational harm, any of which could adversely affect our ability to operate our business and our results of operations. If any of the physicians or other healthcare providers or entities with whom we do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs. Additionally, sales of our products outside of the United States will subject us to similar foreign regulatory requirements, all of which are far-reaching and complex, and our failure to comply with such regulatory requirements could result in substantial penalties and have a material adverse effect on our business. We are subject to U. S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal and / or civil liability and harm our business. We are subject to the U. S. FCPA, the U. S. domestic bribery statute contained in 18 U. S. C. § 201, the U. S. Travel Act, the USA PATRIOT Act, the United Kingdom Bribery Act 2010, and other state and national anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees and third-party intermediaries from authorizing, promising, offering, providing, soliciting, or accepting, directly or indirectly, improper payments or benefits to or from any person whether in the public or private sector for the purpose of obtaining or retaining business or securing any other improper advantage. We rely on third-party representatives, distributors, and other business partners to support sales of our products and services and our efforts to ensure regulatory compliance. In addition, as we increase our international sales and business, we may engage with additional business partners. We can be held liable for the corrupt or other illegal activities of our employees, representatives, contractors, business partners, and agents, even if we do not explicitly authorize or have actual knowledge of

such activities. Any violations of anti- corruption and anti- money laundering laws, or allegations of such violations, could disrupt our operations, involve significant management distraction, involve significant costs and expenses, including legal fees, and could result in a material adverse effect on our business, prospects, financial condition, or results of operations. We could also incur severe penalties, including criminal and civil penalties, disgorgement, and other remedial measures. We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws. Our products are subject to export control and import laws and regulations, including the U. S. Export Administration Regulations, U. S. Customs regulations, and various economic and trade sanctions regulations administered by the U. S. Treasury Department' s Office of Foreign Assets Controls. Exports of our products must be made in compliance with these laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers. In addition, changes in our products or changes in applicable export or import laws and regulations may create delays in the introduction and sale of our products in international markets, prevent our customers from deploying our products or, in some cases, prevent the export or import of our products to certain countries, governments or persons altogether. Any change in export or import laws and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations, could also result in decreased use of our products, or in our decreased ability to export or sell our products to existing or potential customers. Any decreased use of our products or limitation on our ability to export or sell our products would likely adversely affect our business, financial condition and results of operations. Risks related to intellectual property

If we are unable to protect our intellectual property, it may reduce our ability to maintain any technological or competitive advantage over our competitors and potential competitors, and our business may be harmed. We rely on patent protection as well as trademark, copyright, trade secret and other intellectual property rights protection and contractual restrictions to protect our proprietary technologies, all of which provide limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We have developed a global patent portfolio that includes more than ~~451~~ **135** issued patents across approximately ~~39~~ **30** patent families that are either owned or exclusively licensed. The owned and licensed patent families contain issued patents and pending applications that relate to devices, systems, and methods for macromolecular analysis, isolation and purification of molecules, genetic testing, computer software systems and reflect our active and ongoing research programs. We also were the assignee of ~~approximately 105~~ **more than 50** pending patent applications ~~and granted patents in~~ **and particular jurisdictions** outside the United States. If we fail to protect and / or maintain our intellectual property, third parties may be able to compete more effectively against us, we may lose our technological or competitive advantage, and / or we may incur substantial litigation costs in our attempts to recover or restrict use of our intellectual property. We cannot assure investors that any of our currently pending or future patent applications will result in granted patents, and we cannot predict how long it will take for such patents to issue, if at all. It is possible that, for any of our patents that have issued or that may issue in the future, our competitors may design their products, technologies or services around our patented technologies. Further, we cannot assure investors that other parties will not challenge any patents granted to us, or that courts or regulatory agencies will hold our patents to be valid, enforceable, and / or infringed. We cannot guarantee investors that we will be successful in defending challenges made against our patents and patent applications. Any successful third- party challenge or challenges to our patents could result in the unenforceability or invalidity of such patents, or such patents being interpreted narrowly and / or in a manner adverse to our interests. Our ability to establish or maintain a technological or competitive advantage over our competitors and / or market entrants may be diminished because of these uncertainties. For these and other reasons, our intellectual property may not provide us with any competitive advantage. For example:

- we or our licensors might not have been the first to make the inventions claimed or disclosed by our pending patent applications or issued patents;
- we or our licensors might not have been the first to file patent applications for these inventions. To determine the priority of these inventions, we may have to participate in interference proceedings or derivation proceedings declared by the U. S. Patent and Trademark Office, or the USPTO, which could result in substantial cost to us, and could possibly result in a loss or narrowing of patent rights. No assurance can be given that our or our licensors' patent applications or granted patents will have priority over any other patent or patent application involved in such a proceeding, or will be held valid as an outcome of the proceeding;
- other parties may independently develop similar or alternative products and technologies or duplicate any of our products and technologies, which can potentially impact our market share, revenue, and goodwill, regardless of whether intellectual property rights are successfully enforced against these other parties;
- it is possible that our owned or licensed pending patent applications will not result in granted patents, and even if such pending patent applications issue as patents, they may not provide intellectual property protection of commercially viable products or product features, may not provide us with any competitive advantages, or may be challenged and invalidated by third parties, patent offices, and / or the courts;
- we may be unaware of or unfamiliar with prior art and / or interpretations of prior art that could potentially impact the validity or scope of our patents or pending patent applications, or patent applications that we intend to file;
- we take efforts to enter into agreements with employees, consultants, collaborators, and, as applicable, advisors to confirm ownership and chain of title in intellectual property rights. However, an inventorship or ownership dispute could arise that may permit one or more third parties to practice or enforce our intellectual property rights, including possible efforts to enforce rights against us;
- we may elect not to maintain or pursue intellectual property rights that, at some point in time, may be considered relevant to or enforceable against a competitor;
- we may not develop additional proprietary products and technologies that are patentable, or we may develop additional proprietary products and technologies that are not patentable;
- the patents or other intellectual property rights of others may have an adverse effect on our business; and
- we apply for patents relating to our products and technologies and uses thereof, as we deem appropriate. However, we or our representatives or their agents may fail to apply for

patents on important products and technologies in a timely fashion or at all, or we or our representatives or their agents may fail to apply for patents in potentially relevant jurisdictions. To the extent our intellectual property offers inadequate protection, or is found to be invalid or unenforceable, we would be exposed to a greater risk of direct or indirect competition. If our intellectual property does not provide adequate coverage of our competitors' products, technologies or services, our competitive position could be adversely affected, as could our business. Further, to the extent that computation methods implemented by software included in our products or technologies are not protected by our patents, our dependence on copyright and trade secret protection may not provide adequate protection. In addition, the Supreme Court's ruling in Alice Corporation Pty. Ltd. v. CLS Bank International has narrowed the scope of patent protection available for computational methods in certain circumstances. The measures that we use to protect the security of our intellectual property and other proprietary rights may not be adequate, which could result in the loss of legal protection for, and thereby diminish the value of, such intellectual property and other rights. In addition to pursuing patents on our technologies, we also rely upon trademarks, trade secrets, copyrights and unfair competition laws, as well as license agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. Despite these measures, any of our intellectual property rights could be challenged, invalidated, circumvented or misappropriated. In addition, we take steps to protect our intellectual property and proprietary technologies by entering into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, corporate partners and, when needed, our advisors. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets and / or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure. Moreover, if a party having an agreement with us has an overlapping or conflicting obligation to a third party, our rights in and to certain intellectual property could be undermined. Monitoring unauthorized and inadvertent disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third party had illegally obtained and was using our trade secrets, it would be expensive and time consuming, the outcome would be unpredictable, and any remedy may be inadequate. In addition, courts outside the United States may be less willing to protect trade secrets. In addition, competitors could purchase our products or technologies and attempt to replicate and / or improve some or all of the competitive advantages we derive from our development efforts, willfully infringe our intellectual property rights, design their products or technologies around our protected technologies or develop their own competitive technologies that fall outside of our intellectual property rights. If our intellectual property does not adequately protect our market share against competitors' products or technologies, services and methods, our competitive position could be adversely affected, as could our business. We have rights in some intellectual property that has been discovered through government funded programs and thus is subject to federal regulations such as " march- in " rights, certain reporting requirements, and a preference for U. S. industry. Compliance with such regulations may limit our exclusive rights, subject us to expenditure of resources with respect to reporting requirements, and limit our ability to contract with non- U. S. manufacturers. Some of the intellectual property rights assigned to us and / or licensed to us have been generated through the use of U. S. government funding and are therefore subject to certain federal regulations. ~~For example, all of the intellectual property rights licensed to us under our license agreement with Princeton University have been generated using U. S. government funds.~~ As a result, the U. S. government has certain rights to intellectual property embodied in our current or future products pursuant to the Bayh- Dole Act of 1980. These U. S. government rights in certain inventions developed under a government- funded program include a non- exclusive, non- transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U. S. government has the right to require us to grant exclusive, partially exclusive, or non- exclusive licenses to any of these inventions to a third- party if the government determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as " march- in rights "). The U. S. government also has the right to take title to these inventions if we fail, or the applicable licensor fails, to disclose the invention to the government, elect title, and file an application to register the intellectual property within specified time limits. In addition, the U. S. government may acquire title to these inventions in any country in which a patent application is not filed within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us, or the applicable licensor, to expend substantial resources. In addition, the U. S. government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that, under the circumstances, domestic manufacture is not commercially feasible. This preference for U. S. manufacturing may limit our ability to license the applicable patent rights on an exclusive basis under certain circumstances. If we enter into future arrangements involving government funding, and we make or license inventions that result from such funding, intellectual property rights to such discoveries may be subject to the applicable provisions of the Bayh- Dole Act. To the extent any of our current or future intellectual property is generated through the use of U. S. government funding, the provisions of the Bayh- Dole Act may similarly apply. Any exercise by the government of certain of its rights could harm our competitive position, business, financial condition, results of operations and prospects. We depend on **technology intellectual property** that is licensed to us by **Princeton University third parties**. **Any loss Loss** of our rights to **such this technology** could prevent us from selling our products. **Some technology that relates to analysis of nucleic acids is licensed intellectual property or exclusively to us from Princeton University, or our Princeton inability to enter into necessary licenses on acceptable terms may have an adverse impact on our results of operation**. We do not own the patents that underlie this license. Our rights to use this technology and employ the inventions claimed in the licensed patents are subject to the continuation of and compliance with the terms of the license. Our principal obligations under our license agreement with

Princeton are as follows: • royalty payments; • annual maintenance fees; • using commercially reasonable efforts to develop and sell a product using the licensed technology and developing a market for such product; • paying and / or reimbursing fees related to prosecution, maintenance and enforcement of patent rights; and • providing certain reports. If we breach any of these obligations, Princeton may have the right to terminate or modify the license, which could result in our being unable to develop, manufacture and sell our products or a competitor gaining access to the relevant technology. Termination or certain modifications of our license agreement with Princeton would have a material adverse effect on our business. In addition, we are a party to a number of other agreements that include licenses to intellectual property, including non- exclusive licenses. We may need to enter into additional license agreements in the future. Our business could suffer, for example, if any current or future licenses terminate, if the licensors fail to abide by the terms of the license, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms. As we have done previously, we may need or may choose to obtain licenses and / or acquire intellectual property rights from third parties to advance our research or begin commercialization of our current or future products or services, and we cannot provide any assurances that third- party patents do not exist that might be enforced against our current or future products or services in the absence of such a license. We may fail to obtain any of these licenses or intellectual property rights on commercially reasonable terms. Even if we are able to obtain a license, it may be non- exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected products or services, which could materially harm our business and the third parties owning such intellectual property rights could seek either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and / or other forms of compensation. Licensing of intellectual property is important to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property subject to a license agreement, including: • the scope of rights granted under the license agreement and other interpretation- related issues; • whether and the extent to which our technologies and processes infringe any intellectual property of the licensor that is not subject to the licensing agreement; • whether to take action to enforce any intellectual property rights against an allegedly infringing product or process of a third- party; • our right to sublicense patent and other rights to third parties; • our diligence obligations with respect to the use of licensed technology in relation to our development and commercialization of our products and services, and what activities satisfy those diligence obligations; and • the ownership of inventions and know- how, such as intellectual property resulting from the joint creation or use of intellectual property by our licensors and us and our partners. If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product or service, or the dispute may have an adverse effect on our results of operation. In addition to agreements pursuant to which we in- license intellectual property, we may in the future grant licenses under our intellectual property, or sell certain intellectual property. Like in- licenses, out- licenses can be complex and disputes may arise between us and our licensees, such as the types of disputes described above. Moreover, licensees may breach their obligations, or we may be exposed to liability due to our failure or alleged failure to satisfy our obligations. Any such occurrence could have an adverse effect on our business. If we or any of our partners is sued for infringing intellectual property rights of third parties, it would be costly and time consuming, and an unfavorable outcome in that litigation could have a material adverse effect on our business. Our success also depends on our ability to develop, manufacture, market and sell our products and technologies and perform our services without infringing the proprietary rights of third parties. Numerous U. S. and foreign- issued patents and pending patent applications owned by third parties exist in the fields in which we are developing manufacturing, marketing and selling products and technologies and performing services. As part of a business strategy to impede our successful commercialization and entry into new markets, competitors may allege that our products, technologies and / or services infringe their intellectual property rights. We could incur substantial costs and divert the attention of our management and technical personnel in defending ourselves against claims of infringement made by third parties. Any adverse ruling by a court or administrative body, or perception of an adverse ruling, may have a material adverse impact on our ability to conduct our business and our finances. Moreover, third parties making claims against us may be able to obtain injunctive relief against us, which could block our ability to offer one or more products, technologies or services and could result in a substantial award of damages against us. In addition, since we sometimes indemnify customers, collaborators or licensees, we may have additional liability in connection with any infringement or alleged infringement of third- party intellectual property. Intellectual property litigation can be very expensive, and we may not have the financial means to defend ourselves or our customers, collaborators and licensees. Because patent applications can take many years to issue, there may be pending applications, some of which are unknown to us, that may result in issued patents upon which our products, services or proprietary technologies may infringe. Moreover, we may fail to identify issued patents of relevance or incorrectly conclude that an issued patent is invalid or not infringed any of our products, services or proprietary technologies. There is a substantial amount of litigation involving patents and other intellectual property rights in our industry. If a third party claims that we or any of our licensors, customers or collaboration partners infringe upon a third- party' s intellectual property rights, we may have to: • seek to obtain licenses that may not be available on commercially reasonable terms, if at all; • abandon any product or service alleged or held to infringe, or redesign our products or technologies or processes to avoid potential assertion of infringement; • pay substantial damages including, in exceptional cases, treble damages and attorneys' fees, which we may have to pay if a court decides that the product or proprietary technology at issue infringes upon or violates the third- party' s rights; • pay substantial royalties or fees for, or grant cross- licenses to, our technology; or • defend litigation or administrative proceedings that may be costly whether we win or lose, and which could result in a substantial diversion of our financial and management resources. We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time- consuming and unsuccessful. Competitors may infringe our patents or the patents we license in. In the event of infringement or unauthorized

use, we may file one or more infringement lawsuits, which can be expensive and time-consuming. An adverse result in any such litigation proceedings could put one or more of our patents at risk of being invalidated, being found to be unenforceable, and / or being interpreted narrowly and could put our patent applications at risk of not issuing and / or could impact the validity or enforceability positions of our other patents or those we license. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. Most of our competitors are larger than we are and have substantially greater resources. They are, therefore, likely to be able to sustain the costs of complex patent litigation longer than we could. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations, continue our internal research programs, in-license needed technology, pursue, obtain or maintain intellectual property rights, or enter into development partnerships that would help us bring our products, technologies or services to market. In addition, patent litigation can be very costly and time-consuming. An adverse outcome in such litigation or proceedings may expose us or any of our future development partners to loss of our proprietary position, expose us to significant liabilities, or require us to seek licenses that may not be available on commercially acceptable terms, if at all. Our issued patents could be found invalid or unenforceable if challenged in court or at the Patent Office or other administrative agency, which could have a material adverse impact on our business. If we or any of our partners were to initiate legal proceedings against a third-party to enforce a patent related to one of our products, technologies or services, the defendant in such litigation could counterclaim that our patent is invalid and / or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and / or unenforceability are commonplace, as are validity challenges by the defendant against the subject patent or other patents before the USPTO. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement, failure to meet the written description requirement, indefiniteness, and / or failure to disclose the best mode or to claim patent eligible subject matter. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent intentionally withheld material information from the USPTO, or made a misleading statement, during prosecution. Additional grounds for an unenforceability assertion include an allegation of misuse or anticompetitive use of patent rights, and an allegation of incorrect inventorship with deceptive intent. Third parties may also raise similar claims before the USPTO even outside the context of litigation. The outcome is unpredictable following legal assertions of invalidity and unenforceability. With respect to the validity question, for example, we cannot be certain that no invalidating prior art existed of which we and the patent examiner were unaware during prosecution. These assertions may also be based on information known to us or the USPTO. If a defendant or third party were to prevail on a legal assertion of invalidity and / or unenforceability, we would lose at least part, and perhaps all, of the claims of the challenged patent. Such a loss of patent protection would or could have a material adverse impact on our business. We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed alleged trade secrets of their other clients or former employers to us, and / or that their other clients or former employers allegedly have rights in our intellectual property, which could subject us to costly litigation. As is common in the life sciences industry, we engage the services of consultants and independent contractors to assist us in the development of our products, technologies and services. Many of these consultants and independent contractors were previously employed at, or may have previously or may be currently providing consulting or other services to, universities or other technology, biotechnology or pharmaceutical companies, including our competitors or potential competitors. We may become subject to claims that our company, a consultant or an independent contractor inadvertently or otherwise used or disclosed trade secrets or other information proprietary to their former employers or their former or current clients. We may similarly be subject to claims stemming from similar actions of an employee, such as one who was previously employed by another company, including a competitor or potential competitor. We may become subject to claims that one or more current or former employees, consultants, advisors, or independent contractors of ours owns rights in our intellectual property and / or has assigned or is under an obligation to assign rights in our intellectual property to another party. This may include a competitor of ours. If a competitor has rights in our patents, the competitor or a licensee or related entity of the competitor may be able to make, use, sell, import, and / or export the patented technology without liability to us under our patents or the patents we license. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to our management team. If we were not successful, we could lose valuable intellectual property rights. We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property. We generally enter into confidentiality and intellectual property assignment agreements with our employees, consultants, contractors, and, as applicable, advisors. These agreements generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, those agreements may not be honored and may not effectively assign or may be alleged to ineffectively assign intellectual property rights to us. For example, even if we have a consulting agreement in place with an academic advisor pursuant to which such academic advisor is required to assign any inventions developed in connection with providing services to us, such academic advisor may not have the right to assign such inventions to us, as it may conflict with his or her obligations to assign all such intellectual property to his or her employing institution. In addition, we sometimes enter into agreements where we provide services to third parties, such as customers. Under such circumstances, our agreements may provide that certain intellectual property that we conceive in the course of providing those services is assigned to the customer. In those cases, we may not be able to use that particular intellectual property in, for example, our work for other customers without a license. We may not be able to protect our intellectual property rights throughout the world, which could materially and negatively affect our business. Filing, prosecuting, maintaining, and defending patents on current and future products, technologies and services in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the

same extent as federal and state laws in the United States. Consequently, regardless of whether we are able to prevent third parties from practicing our inventions in the United States, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not pursued and obtained patent protection to develop their own products, technologies or services, and further, may export otherwise infringing products or technologies to territories where we have patent protection, but enforcement is not as strong as it is in the United States. These products, technologies or services may compete with our products, technologies or services and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Even if we pursue and obtain issued patents in particular jurisdictions, our patent claims or other intellectual property rights may not be effective or sufficient to prevent third parties from so competing. Patent protection must ultimately be sought on a country- by- country basis, which is an expensive and time- consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries. Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement of our patents or marketing of competing products, technologies or services in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license and may adversely impact our business. In addition, we and our partners also face the risk that our products or components thereof are imported, reimported, or exported into markets with relatively higher prices from markets with relatively lower prices, which would result in a decrease of sales and any payments we receive from the affected market. Recent developments in U. S. patent law have made it more difficult to stop these and related practices based on theories of patent infringement. Changes in patent laws or patent jurisprudence could diminish the value of patents in general, thereby impairing our ability to protect our products or technologies. As is the case with other life science industry companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents involve both technological complexity and legal complexity. Therefore, obtaining and enforcing patents is costly, time- consuming and inherently uncertain. In addition, the America Invents Act, or the AIA, became effective on March 16, 2013. An important change introduced by the AIA is that the United States transitioned to a “ first- to- file ” system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third- party that files a patent application in the USPTO after that date but before us could therefore be awarded a patent claiming or disclosing an invention of ours even if we had made the invention before it was made by the third- party. This will require us to be cognizant going forward of the time from invention to filing of a patent application, but circumstances could prevent us from promptly filing patent applications on our inventions. Additionally, there can be a trade- off between obtaining an earlier filing date, and waiting to obtain additional data and / or further refine a patent application. In some circumstances, the effects of a decision to pursue an earlier filing or a later filing will not be known until prior art or third- party activities are subsequently discovered, such as by the USPTO or by a third- party seeking to challenge patent rights. These circumstances may apply, for example, to patent applications prepared and filed around the time of the implementation of the AIA, or with a priority application that preceded the implementation of the AIA. Among some of the other changes introduced by the AIA are changes that limit where a patent holder may file a patent infringement suit and providing additional opportunities for third parties to challenge an issued patent in the USPTO. This applies to all of our owned and in- licensed U. S. patents, even those issued before March 16, 2013. Because of a lower standard for evidence in USPTO proceedings compared to the standard for evidence in U. S. federal courts necessary to invalidate a patent claim, a third- party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a court action. Accordingly, a third- party may try to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third- party in court. The AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. In addition, the contours of the laws under the AIA are subject to further judicial interpretation and / or legislative changes. Additionally, the U. S. Supreme Court has ruled on several patent cases in recent years, such as *Impression Products, Inc. v. Lexmark International, Inc.*, *Association for Molecular Pathology v. Myriad Genetics, Inc.*, *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Alice Corporation Pty. Ltd. v. CLS Bank International*, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with our ability to obtain patents in the future, this combination of events has created uncertainty as to the value of patents, once obtained, including patents in the molecular biology analysis and diagnostic space in particular. Depending on decisions by the U. S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non- compliance with these requirements. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which

noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case. In some cases, our licensors may be responsible for these payments, thereby decreasing our control over compliance with these requirements. If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected. Our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition by potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Use of third- party open source software components in our products or our future products or technologies, and failure to comply with the terms of the underlying open source software licenses could restrict our ability to sell such products or technologies. Use and distribution of open source software may entail greater risks than use of third- party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Some open source licenses may contain requirements that we make available source code for modifications or derivative works we create based upon the type of open source software we use. If we combine our proprietary software with open source software in a certain manner, we could, under certain open source licenses, be required to release the source code of our proprietary software to the public. This would allow our competitors to create similar products with less development effort and time, and ultimately could result in a loss of product sales. Although we intend to monitor any use of open source software to avoid subjecting our products to conditions, we do not intend, the terms of many open source licenses have not been interpreted by U. S. courts, and there is a risk that any such licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our products. Moreover, we cannot assure investors that our processes for controlling our use of open source software in our products will be effective. If we are held to have breached the terms of an open source software license, we could be required to seek licenses from third parties to continue offering our products on terms that are not economically feasible, to re- engineer our products, to discontinue the sale of our products if re- engineering could not be accomplished on a timely basis, or to make generally available, in source code form, our proprietary code, any of which could adversely affect our business, operating results, and financial condition. We use third- party software that may be difficult to replace or cause errors or failures of our products that could lead to lost customers or harm to our reputation. We use software licensed from third parties in our products. In the future, this software may not be available to us on commercially reasonable terms, or at all. Any loss of the right to use any of this software could result in delays in the production of our products until equivalent technology is either developed by us, or, if available, is identified, obtained and integrated, which could harm our business. In addition, any errors or defects in third- party software or other third- party software failures could result in errors or defects or cause our products to fail, which could harm our business and be costly to correct. Many of these providers attempt to impose limitations on their liability for such errors, defects or failures, and, if enforceable, we may have additional liability to our customers or third- party providers that could harm our reputation and increase our operating costs. We intend to maintain our relationships with third- party software providers and to seek software from such providers that does not contain any errors or defects. Any failure to do so could adversely impact our ability to deliver reliable products to our customers and could harm our results of operations. Numerous factors may limit any potential competitive advantage provided by our intellectual property rights. The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, provide a barrier to entry against our competitors or potential competitors, or permit us to maintain our competitive advantage. Moreover, if a third party has intellectual property rights that cover or impact our use of our technologies, we may not be able to fully use or extract value from our intellectual property rights. For example: • others may be able to develop and / or use technologies that are similar to our technologies or aspects of our technologies but that does not cover the claims of any our patents or patents that may issue from our patent applications or those we license; • we or the licensor of our licensed- in patents might not have been the first to make the inventions disclosed and / or claimed in a pending patent application that we own or license; • we or the licensor of our licensed- in patents might not have been the first to file patent applications disclosing and / or claiming an invention; • others may independently develop similar or alternative technologies without infringing our or our licensors' intellectual property rights; • pending patent applications that we own or license may not lead to issued patents or may not result in the claims that we want (for example, as to the scope of issued claims, if any); • patents, if issued, that we own or license may not provide us with any competitive advantages, or may be held invalid or unenforceable, as a result of legal challenges by our competitors or other third parties; • third parties may compete with us in jurisdictions where we do not pursue and obtain patent protection; • we may not be able to obtain and / or maintain necessary or useful licenses on reasonable terms or at all; • third parties may assert an ownership interest in our intellectual property and, if successful, such disputes may preclude us from exercising exclusive rights over that intellectual property; • we may not be able to maintain the confidentiality of our trade secrets or other proprietary information; • we may not develop or in- license additional proprietary technologies that are patentable; and • the patents or other intellectual property of others may have an adverse effect on our business. Should any of these events occur, they could significantly harm our business and results of operations. Risks related to ownership of our securities The price of our securities has been and may in the future be volatile or may decline regardless of our operating performance, and you could lose all or part of your investment. Our stock price has been and may continue to be volatile. The daily closing market price for our common stock has varied significantly in the last 12 months, ranging between a high price of \$ 19.68, 70.99 on February 2, May 15, 2023-2024 and a low price of \$ 1.3, 09.25 on

February 5, March 20, 2024, 2025 and March 21, 2025 (as adjusted for the reverse stock split effectuated on January 24, 2025). During this time, the price per share of common stock has ranged from an intra-day low of \$ 1.34-16 per share to an intra-day high of \$ 20.72, 20.59 per share (as adjusted for the reverse stock split effectuated on January 24, 2025). The trading price of our securities common stock is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. ~~In addition to~~ **We cannot predict the risk actions of market participants and, therefore, can offer no assurances that the market for our common stock will be stable or appreciate over time. The market price of our common stock may be influenced by many** factors discussed in this section and elsewhere in our Annual Report, these factors include ~~including but not limited to~~: • our commercial progress in marketing and selling our genome analysis systems, including sales and revenue trends; • changes in laws or regulations applicable to our systems; • adverse developments related to our laboratory facilities; • increased competition in the diagnostics services industry; • changes in the structure or funding of research at academic and governmental research institutions, as well as pharmaceutical, biotechnology and contract research companies, including changes that would affect their ability to purchase our products, consumables and technologies; • the failure to obtain and / or maintain coverage and adequate reimbursement for our Bionano Laboratories products and diagnostic assays and patients' willingness to pay out-of-pocket in the absence of such coverage and adequate reimbursement; • the failure of our customers to obtain and / or maintain coverage and adequate reimbursement for their services using our OGM systems, Ionic® Purification systems or our VIA™ software; • adverse developments concerning our manufacturers and suppliers; • our inability to establish future collaborations; • additions or departures of key scientific or management personnel; • introduction of new testing services offered by us or our competitors; • announcements of significant acquisitions, dispositions, strategic partnerships, joint ventures or capital commitments by us or our competitors; • our ability to effectively manage our growth; • the size and growth, if any, of our targeted markets; • the failure or discontinuation of any of our product development and research programs; • actual or anticipated variations in quarterly operating results; • our cash position; • our failure to meet the estimates and projections of the investment community and securities analysts or that we may otherwise provide to the public; • publication of research reports about us or our industries or positive or negative recommendations or withdrawal of research coverage by securities analysts; • changes in the market valuations of similar companies; • overall performance of the equity markets; • issuances of debt or equity securities; • sales of our securities by us or our stockholders in the future; • trading volume of our securities; • changes in accounting practices; • ineffectiveness of our internal controls; • data breaches of our company, providers, vendors or customers; • regulatory or legal developments in the United States and other countries; • disputes or other developments relating to proprietary rights, including our ability to adequately protect our proprietary rights in our technologies; • significant lawsuits, including patent or stockholder litigation; • natural disasters, infectious diseases, conflict, including the ongoing military conflict between Russia and Ukraine and the related sanctions, conflicts in the ~~middle~~ **Middle east East**, civil unrest, epidemics or pandemics, outbreaks, resurgences or major catastrophic events; • general political and economic conditions, including potential future disruptions in access to bank deposits or lending commitments due to bank failures; • our cost savings ~~saving~~ initiatives announced in May 2023, October 2023 and, March 2024; • ~~the reverse stock split of the Company's common stock effected on August 4, and September 2023~~ **2024**; and • other events or factors, many of which are beyond our control. **As a result, you may not be able to sell your shares of our common stock at or above the price at which you purchased them.** In addition, the stock market in general, and the market for life science technology companies in particular (including companies in the diagnostic, genomic and biotechnology related sectors), have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our securities, regardless of our actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. Because of the volatility of our stock price, we may become the target of securities litigation in the future. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition. The reverse stock ~~split~~ **splits** we implemented may not achieve the intended results and the market price of our common stock may be materially and negatively impacted. At our 2023 Annual Meeting of Stockholders, our stockholders approved a proposal for a series of alternate amendments to our Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our board of directors, a reverse stock split of our common stock at a ratio between 1- for- 5 and 1- for- 10, inclusive, as determined by our board of directors in its sole discretion. On August 2, 2023, our board of directors approved a reverse stock split at a ratio of 1- for- 10, and on August 4, 2023, we filed a certificate of amendment to effect the reverse split ratio chosen by our board of directors. **At our Special Meeting of Stockholders held on January 15, 2025, our stockholders approved a proposal for a series of alternate amendments to our Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our board of directors, a reverse stock split of our common stock at a ratio between 1- for- 25 and 1- for- 75, inclusive, as determined by our board of directors in its sole discretion. On January 15, 2025, our board of directors approved a reverse stock split at a ratio of 1- for- 60, and on January 24, 2025, we filed a certificate of amendment to effect the reverse split ratio chosen by our board of directors.** We cannot assure you that we will achieve any of the intended results of the reverse stock ~~split~~ **splits**, including improved marketability and liquidity of our common stock, maintaining compliance with Nasdaq listing standards and encouraging trading in our common stock by long-term investors. Accordingly, the market price and the value of your investment could be materially and negatively impacted. The effective increase in the number of shares of our common stock available for issuance as a result of the reverse stock ~~split~~ **splits** could result in further dilution to our existing stockholders and have ~~anti- antitakeover~~ **takeover** implications. The total number of authorized shares of our common stock was not proportionately reduced in connection with our reverse stock ~~split~~ **splits**. As a result, the reverse stock ~~split~~ **splits** increased the number of shares of our common stock (or securities convertible or exchangeable for our common stock) available for issuance

by decreasing the number of shares of our common stock issued and outstanding. The additional available shares are available for issuance from time to time at the discretion of our board of directors when opportunities arise, without further stockholder action, except as may be required for a particular transaction by law, the rules of any exchange on which our securities may then be listed, or other agreements or restrictions. Any issuance of additional shares of our common stock would increase the number of outstanding shares of our common stock and (unless such issuance was pro-rata among all existing stockholders) the percentage ownership of existing stockholders would be diluted accordingly. In addition, any such issuance of additional shares of our common stock could have the effect of diluting the earnings per share and book value per share of outstanding shares of our common stock. Additionally, such effective increase in the number of shares of our common stock available for issuance could, under certain circumstances, have anti-takeover implications. For example, without further stockholder approval, our board of directors could adopt a “poison pill” which would, under certain circumstances related to an acquisition of our securities that is not approved by the board of directors, give certain holders the right to acquire additional shares of our common stock at a low price. Our board of directors also could strategically sell shares of common stock in a private transaction to purchasers who would oppose a takeover or favor the current board of directors. Although the reverse stock split splits were prompted by business and financial considerations, you should be aware the reverse stock split splits could facilitate future efforts by us to deter or prevent changes in control, including transactions in which you might otherwise receive a premium for your shares over then current market prices. If we are not able to comply with the applicable continued listing requirements or standards of The Nasdaq Capital Market, Nasdaq could delist our common stock. Our ability to publicly or privately sell equity securities and the liquidity of our common stock could be adversely affected if we are delisted from The Nasdaq Capital Market (“Nasdaq”) or if we are unable to transfer our listing to another stock market. In order to maintain this listing, we must satisfy minimum financial and other continued listing requirements and standards, including a requirement to maintain a minimum bid price of our the Company’s common stock of \$ 1.00 per share pursuant to Nasdaq Listing Rule 5550 (a) (2) (the “Minimum Bid Price Requirement”). In On multiple occasions in the past, we have failed to comply with the per share minimum required for continued listing on The Nasdaq Capital Market (“Nasdaq”) pursuant to Nasdaq Listing Rule 5550 (a) (2) (the “Minimum Bid Price Requirement”). On For example, on May 30, 2023, we received a letter (the “First Notice”) from Nasdaq advising us that for 30 consecutive trading days preceding the date of the First Notice, the bid price of our common stock had closed below the Minimum Bid Price Requirement. While Under Nasdaq Listing Rule 5810 (e) (3) (A), we had 180 calendar days following the date of the Notice implemented a reverse stock split, effective August 4, 2023 that temporarily enabled us to satisfy regain compliance with the Minimum Bid Price Requirement. If at any time during this 180-, on July 11, 2024, we received another letter (the “Second Notice”) from Nasdaq advising us that for 30 consecutive trading day days period preceding the closing date of the Second Notice, the bid price of our common stock had closed below was at least \$ 1.00 for a minimum of 10 consecutive business days, we would regain compliance with the Minimum Bid Price Requirement and the matter will be closed. The Second Notice On August 21, 2023, we announced that we had no effect on the listing of our common stock, and our common stock continues to trade on Nasdaq under the symbol “BNGO.” Even though we have implemented another reverse stock split, effective January 24, 2025, and received a letter from the staff of Nasdaq notifying us on February 10, 2025 that we had regained compliance with the Minimum Bid Price Requirement, and the matter is now closed. While we regained compliance with cannot assure you that we will be able to continue to satisfy the Minimum Bid Price Requirement or each other Nasdaq requirement for continued listing. If we fail to satisfy any Nasdaq requirement for continued listing, Nasdaq staff could provide notice that our common stock may become subject to delisting. Accordingly, there can be no guarantee that we will be able to maintain our Nasdaq listing in the future. If in the future we fail to comply with the Minimum Bid Price Requirement or if we fail to satisfy another Nasdaq requirement for continued listing, Nasdaq staff could provide notice that our common stock may become subject to delisting. If our common stock is delisted by Nasdaq, it could lead to a number of negative implications, including an adverse effect on the price of our common stock, increased volatility in our common stock, reduced liquidity in our common stock, the loss of federal preemption of state securities laws and greater difficulty in obtaining financing. In addition, delisting of our common stock could deter broker-dealers from making a market in or otherwise seeking or generating interest in our common stock, could result in a loss of current or future coverage by certain sell-side analysts and might deter certain institutions and persons from investing in our securities at all. Moreover, any such delisting could trigger a default or event of default under certain agreements that we have in place with third parties; for example, a delisting for a period of at least five trading days constitutes an event of default under the Notes, which entitles the holder thereof to declare the Notes immediately due and payable. Delisting could also cause a loss of confidence of our customers, collaborators, vendors, suppliers and employees, which could harm our business and future prospects. If we fail to maintain effective internal control over financial reporting, we may not be able to accurately report our financial results or file our periodic reports in a timely manner, which may cause adverse effects on our business and may cause investors to lose confidence in our reported financial information and may lead to a decline in our stock price. We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”) and the rules and regulations of Nasdaq. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with accounting principles generally accepted in the United States. Effective internal control over financial reporting is necessary for us to provide reliable financial reports in a timely manner. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. We cannot assure you that we will not experience future material weaknesses or that we will be able to successfully remediate any such material weakness in a timely manner or at all. If our independent registered public accounting firm is subsequently unable to conclude

that our internal control over financial reporting is effective, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our securities could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities and we could be subject to shareholder litigation. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets. Further, as a “ non-accelerated filer ” we are not required to obtain an independent assessment of the effectiveness of our internal controls. An independent assessment of the effectiveness of our internal controls could detect problems that our management’ s assessment might not. Consequently, if we choose not to obtain an independent assessment, there is a risk that we may not detect problems with our internal controls that otherwise might have been detected. These inherent limitations include the realities that judgments in decision- making can be faulty, and that breakdowns can occur because of simple errors or mistakes. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected. We are a smaller reporting company, and the reduced reporting requirements applicable to smaller reporting companies could make our securities less attractive to investors. We currently qualify as a smaller reporting company and a non- accelerated filer, which allows us to take advantage of many exemptions from various reporting requirements that are applicable to other public companies that are not smaller reporting companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes- Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. As we have chosen to avail ourselves of certain scaled disclosure requirements applicable to smaller reporting companies, the content of our disclosures may differ from period to period. We may no longer qualify as a smaller reporting company in the future should the market value of our common stock held by non- affiliates as of the end of the second quarter of any given year once again exceed \$ 700. 0 million or our revenue as for any fiscal year exceeds \$ 100. 0 million. There may be further variance in the content of our disclosures as we avail ourselves of certain scaled disclosure requirements if we subsequently no longer qualify as a smaller reporting company because we would be required to provide the full disclosures required of non- smaller reporting companies. We cannot predict if investors will find our securities less attractive because we rely on these exemptions, which could result in a less active trading market for our securities and increased volatility in the price of our securities. A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future. This could cause the market price of our common stock to drop significantly, even if our business is doing well. Sales of a substantial number of shares of our common stock in the public market could occur at any time, subject to the restrictions and limitations described below. If our stockholders sell, or the market perceives that our stockholders intend to sell, substantial amounts of our common stock in the public market, the market price of our common stock could decline significantly. All of our outstanding shares of common stock are available for sale in the public market, subject only to the restrictions of Rule 144 under the Securities Act in the case of our affiliates. In addition, as of the date of this Annual Report, we have filed registration statements on Form S- 8 under the Securities Act registering the issuance of an aggregate of ~~5. 3 million~~ **approximately 127, 000** shares of common stock **(as adjusted for the reverse stock split)** subject to options or other equity awards issued or reserved for future issuance under our equity incentive plans. We also intend to file future registration statements on Form S- 8 under the Securities Act registering the issuance of additional shares of common stock, including because the number of shares that may be issued under certain employee equity benefit plans automatically increase as a result of the operation of certain “ evergreen ” provisions in our equity plans. Shares registered under these registration statements on Form S- 8 are available for sale in the public market subject to vesting arrangements and exercise of options, and the restrictions of Rule 144 in the case of our affiliates. Further in connection with the Private Placement completed in October 2023, we filed a Form S- 3 to enable the ~~Purchaser~~ **purchaser** to resell the shares underlying the Private Placement Notes and the Private Placement Warrants (as defined in ~~the Notes~~ **Note 9 (Debt to Consolidated Financial Statements)** **to our consolidated financial statements**). Following the redemptions in February ~~and May~~ **2024**, the ~~High Trail~~ **Private Placement Notes and the High Trail Registered** Notes have been canceled. However, ~~if the Purchaser exercises its option to purchase~~ **purchaser retains** the ~~Subsequently Purchased Notes, such~~ **Subsequently Purchased Notes are initially convertible into 8. 7 million shares of our common stock and** the Private Placement Warrants ~~are to purchase up to 6. 8 million~~ **approximately 113, 000** shares of our common stock **(as adjusted for the reverse stock split)**. **Further, in connection with the April 2024 Registered Direct Offering, we issued and sold, among other things, warrants to purchase approximately 146, 000 shares of our common stock (as adjusted for the reverse stock split); in connection with the July 2024 Offering, we issued and sold, among other things, warrants to purchase approximately 584, 000 shares of our common stock (as adjusted for the reverse stock split) following stockholder approval; in connection with the October 2024 Offering, we issued and sold, among other things, warrants to purchase approximately 330, 000 shares of our common stock (as adjusted for the reverse stock split) following stockholder approval; and in connection with the January 2025 Offering, we issued and sold, among other things, warrants to purchase approximately 661, 000 shares of our common stock (as adjusted for the reverse stock split) following stockholder approval**. Anti- takeover provisions under our charter documents and Delaware law could delay or prevent a change of control which could limit the market price of our securities and may prevent or frustrate attempts by our security holders to replace or remove our current management. Our amended and restated certificate of incorporation and amended and restated bylaws, contain provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include: • a board of directors divided into three classes serving staggered three- year terms, such that not all members of the board will be elected at one time; • a prohibition on stockholder action through written consent, which requires that all stockholder actions be taken at a meeting of our stockholders; • a requirement that special meetings of stockholders be called only by the chairman of the board of directors,

the chief executive officer, the president or by a majority of the total number of authorized directors; • advance notice requirements for stockholder proposals and nominations for election to our board of directors; • a requirement that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of all outstanding shares of our voting stock then entitled to vote in the election of directors; • a requirement of approval of not less than two-thirds of all outstanding shares of our voting stock to amend any bylaws by stockholder action or to amend specific provisions of our certificate of incorporation; and • the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the General Corporation Law of the State of Delaware, which may prohibit certain business combinations with stockholders owning 15 % or more of our outstanding voting stock. These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our securities to decline. Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America will be the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees. Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: • any derivative action or proceeding brought on our behalf; • any action asserting a breach of fiduciary duty; • any action asserting a claim against us arising under the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws; and • any action asserting a claim against us that is governed by the internal-affairs doctrine. This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section- 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions. These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could adversely affect our results of operations and financial condition. An active trading market for our common stock may not be sustained. **Although our** Our shares of common stock **began trading is listed** on The Nasdaq Capital Market **on September 21, 2018.** Given the limited trading history of our common stock, there is a risk that an active trading market for our shares **will may** not be sustained, which could put downward pressure on the market price of our common stock and thereby affect the ability of our stockholders to sell their shares. **Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration. Risks Related to Our Review of Strategic Alternatives We may not be successful in identifying and implementing any potential strategic alternatives in a timely manner, or at all, and any strategic transactions that we may consummate in the future could have negative consequences. Our board of directors has established a strategy committee to work with the Company and outside advisors in evaluating our options and considering alternatives that we believe will maximize stockholder value. We expect to devote substantial time and resources to exploring strategic alternatives that our Board believes will maximize stockholder value. Despite management devoting significant efforts to identify and evaluate potential strategic alternatives, there can be no assurance that this strategic review process will result in us pursuing any transaction or that we will be able to successfully consummate any particular strategic transaction on attractive terms, on a timely basis, or at all. For example, certain types of strategic transactions may require third-party consents, such as stockholder approval, which could be difficult or costly to obtain. We have not set a timetable for completion of this strategic review process, and our Board has not approved a definitive course of action. Additionally, there can be no assurance that any particular course of action, business arrangement or transaction, or series of transactions, will be pursued, successfully consummated or lead to increased stockholder value or that we will make any cash distributions to our stockholders. The process of continuing to evaluate our strategic alternatives may be costly, time-consuming and complex, and we may incur significant legal, accounting and advisory fees and other expenses, some of which may be incurred regardless of whether we successfully enter into a transaction. We may also incur additional unanticipated expenses in connection with this**

process. Any such expenses will decrease the remaining cash available for use in our business. Our ability to pursue or consummate strategic transactions also depends upon our ability to retain certain of our employees, the loss of whose services may adversely impact the ability to identify, negotiate and consummate such transaction. If we are unable to successfully retain certain of our key remaining personnel, we are at risk of a disruption to our exploration and consummation of one or more strategic transactions. In addition, potential counterparties in a strategic transaction involving us may place minimal or no value on our assets and our public listing and any strategic transactions that we may pursue could have a variety of negative consequences, and we may enter into a transaction that yields unexpected results that adversely affect our business and decreases the remaining cash available for use in our business. Any potential transaction would be dependent on a number of factors that may be beyond our control, including, among other things, market conditions, industry trends, the interest of third parties in a potential transaction with us, obtaining stockholder approval and the availability of financing to third parties in a potential transaction with us on reasonable terms. There can be no assurance that any particular course of action, business arrangement or transaction, or series of transactions, will be pursued, successfully consummated, lead to increased stockholder value, or achieve the anticipated results. If we are not successful in setting forth a new strategic path for us, or if our plans are not executed in a timely fashion, this may cause reputational harm with our stockholders and the value of our securities may be adversely impacted. In addition, speculation regarding any developments related to the review of strategic alternatives and perceived uncertainties related to our future could cause our stock price to fluctuate significantly. Even if we successfully consummate any strategic transaction, or series of transactions, from our strategic assessment, we may fail to realize all or any of the anticipated benefits of any such transaction, such benefits may take longer to realize than expected, we may encounter integration difficulties or we may be exposed to other operational and financial risks. Our ability to realize the anticipated benefits of any potential strategic transaction will depend on a number of factors, including our ability to integrate with any future business partner, our ability to obtain value for portions of our business, if divested, and our ability to generate future stockholder value. The process may be disruptive to our business, and the expected benefits may not be achieved within the anticipated timeframe, or at all. The failure to overcome the challenges involved and to realize the anticipated benefits of any potential transaction could adversely affect our business and financial condition. The negotiation and consummation of any potential strategic transaction will require significant time on the part of our management, and the diversion of management's attention may disrupt our business. The negotiation and consummation of any such transaction may also require more time or greater cash resources than we anticipate and expose us to other operational and financial risks, including, but not limited to, increased near- term and long- term expenditures, exposure to unknown liabilities, higher than expected acquisition or integration costs, incurrence of substantial debt or dilutive issuances of equity securities to fund future operations, including financings in connection with a strategic transaction, write- downs of assets or goodwill or incurrence of non- recurring, impairment or other charges, increased amortization expenses, difficulty and cost in combining the operations and personnel of any acquired or acquiring business with our operations and personnel, impairment of relationships with key suppliers or customers of any acquired or acquiring business due to changes in management and ownership, inability to retain our key employees or any acquired or acquiring business and possibility of future litigation. Any of the foregoing risks could have a material adverse effect on our business, financial condition and prospects. If a strategic transaction is not consummated, our Board may decide to pursue a dissolution and liquidation. In such an event, the amount of cash available for distribution to our stockholders will depend significantly on the timing of such liquidation as well as the amount of cash that may need to be reserved for commitments and contingent liabilities. If we do not successfully consummate a strategic transaction, our Board may decide to pursue a dissolution and liquidation. In such an event, the amount of cash available for distribution to our stockholders will depend heavily on the timing of such decision and, with the passage of time, the amount of cash available for distribution will be reduced as we continue to fund our operations. In addition, if our Board were to approve and recommend, and our stockholders were to approve, a dissolution and liquidation, we would be required under Delaware corporate law to pay our outstanding obligations, as well as to make reasonable provision for contingent and unknown obligations, prior to making any distributions in liquidation to our stockholders. As a result of this requirement, a portion of our assets may need to be reserved pending the resolution of such obligations and the timing of any such resolution is uncertain. In addition, we may be subject to litigation or other claims related to a dissolution and liquidation. If a dissolution and liquidation were pursued, our Board, in consultation with our advisors, would need to evaluate these matters and make a determination about a reasonable amount to reserve. Accordingly, holders of our common stock could lose all or a significant portion of their investment in the event of a liquidation, dissolution or winding up. The value to stockholders in the event of a strategic transaction or dissolution may depend on the extent to which we will be able to successfully satisfy our existing contractual obligations to third parties on favorable terms, which may include the outcome of our negotiations to reduce or terminate such commitments. We are currently subject to certain contractual obligations and commitments. In connection with our comprehensive exploration of strategic alternatives, we may seek to negotiate with third parties to reduce or eliminate such obligations and commitments. Our ability to successfully negotiate such obligations or commitments on favorable terms, or at all, or our ability to satisfy any such obligations may impact our ability to pursue a strategic transaction on terms favorable to us, the resulting value to stockholders in a strategic transaction or the cash available for distribution to our stockholders in the event of our dissolution. We may also incur substantial costs in connection with or as a result of such negotiations or termination of any of our commitments. There can be no assurance that we will be successful in negotiating to reduce or eliminate any of our existing contractual obligations and commitments, or that we will be able to satisfy any such obligations on a timetable that will allow us to maximize potential value to our stockholders. General

Risk Factors If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, the price of our securities and trading volume could decline. The trading market for our securities will depend in part on the research and reports that securities or industry analysts publish about us or our business. We have only limited research coverage on our company by equity research analysts. If securities or industry analysts elect not to initiate or continue to provide coverage of our company, the trading price for our securities would likely be negatively impacted. If one or more of the analysts who covers us downgrades our securities or publishes inaccurate or unfavorable research about our business, the price of our securities may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our securities could decrease, which might cause the price of our securities and trading volume to decline. Our business could be negatively affected as a result of actions of activist stockholders, and such activism could impact the trading value of our securities. Stockholders may, from time to time, engage in proxy solicitations or advance stockholder proposals, or otherwise attempt to effect changes and assert influence on our board of directors and management. Activist campaigns that contest or conflict with our strategic direction or seek changes in the composition of our board of directors could have an adverse effect on our operating results and financial condition. A proxy contest would require us to incur significant legal and advisory fees, proxy solicitation expenses and administrative and associated costs and require significant time and attention by our board of directors and management, diverting their attention from the pursuit of our business strategy. Any perceived uncertainties as to our future direction and control, our ability to execute on our strategy, or changes to the composition of our board of directors or senior management team arising from a proxy contest could lead to the perception of a change in the direction of our business or instability which may result in the loss of potential business opportunities, make it more difficult to pursue our strategic initiatives, or limit our ability to attract and retain qualified personnel and business partners, any of which could adversely affect our business and operating results. If individuals are ultimately elected to our board of directors with a specific agenda, it may adversely affect our ability to effectively implement our business strategy and create additional value for our stockholders. We may choose to initiate, or may become subject to, litigation as a result of the proxy contest or matters arising from the proxy contest, which would serve as a further distraction to our board of directors and management and would require us to incur significant additional costs. In addition, actions such as those described above could cause significant fluctuations in our stock price based upon temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business. Securities class action litigation could divert our management's attention and harm our business and could subject us to significant liabilities. The stock markets have from time to time experienced significant price and volume fluctuations that have affected the market prices for the equity securities of life sciences and biotechnology companies. These broad market fluctuations may cause the market price of our ordinary shares to decline. In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology and biopharma companies have experienced significant stock price volatility in recent years. Even if we are successful in defending claims that may be brought in the future, such litigation could result in substantial costs and may be a distraction to our management and may lead to an unfavorable outcome that could adversely impact our financial condition and prospects.